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ABSTRACT

An evaluation of net impact of programs funded under the Washington State Employment and Training Act (ESHB 1988) of 1993, which provided money to community and technical colleges to expand existing courses and create new ones for Unemployment Insurance (UI) claimants most likely to lose jobs. The evaluation focused on whether the displaced UI claimants targeted for aid were at risk of experiencing unusually large earnings losses; whether their community college training raised their earnings above what they otherwise would have been; and whether the program increased the claimants' receipt of such training. Information was gathered through wage and claim records of the state's Employment Security Department covering 10 percent of some 400,000 UI claimants from 1989-1994 who left preclaim employers for whom they had worked for at least 6 quarters. Three key findings reported were as follows: (1) some of the courses offered by community colleges had strong, positive effects on subsequent earnings; (2) the program emphasized taking technical, vocationally oriented courses most likely to raise earnings; and (3) college attendance and completion of courses shown to raise earnings among displaced claimants markedly increased after the program started, and grew as the program matured. (The report contains 16 figures and 26 tables reporting data about program participants and the effects of the program.) (KC)

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NET IMPACT EVALUATION OF RETRAINING UNDER ESHB 1988

January 1997

Westat, Inc.

Louis Jacobson
Robert LaLonde

Conducted for the
Washington State
Workforce Training and Education Coordinating Board

CE 015 262

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Finally, the findings and opinions presented in this paper represent the judgment of the principal authors and are not positions of the WTECB or Westat, Inc. Despite excellent help from many sources, any errors are our responsibility.

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1 Overview and Summary

This study was commissioned by the Washington State Workforce Training and Education Coordination Board (WTECB) to fulfill a legislative mandate for a net impact evaluation of the ESHB 1988 program. The central aim of a net impact evaluation is to determine the differences between the gross impact, what happened to a group targeted for government aid, and what would have happened to that group in the absence of the program. In this study, accurate measurement of "what would have happened otherwise" required establishing a comparison group of individuals similar to those targeted for aid, but who were unaffected by the program. Statistical matching techniques were then used to estimate differences between those affected and those unaffected by the program.

Typically, net impact studies address three main questions:

1. Did those targeted for aid have a problem that merited governmental assistance?

2. Was the aid provided capable of ameliorating the problem?

3. Did the program increase the receipt of aid to the group targeted for assistance?

Importantly, net impact studies only assess the benefits of a government program. Thus, comparing those benefits to the program's cost was outside the scope of our work.

Specifically, our charge was to provide a net impact evaluation of programs funded under the state Employment and Training Act (ESHB 1988) that was passed in 1993. This act provided money, raised from a special payroll tax, directly to community and technical colleges to expand existing courses and create new ones, as well as to increase supportive services for Unemployment Insurance (UI) claimants most likely to lose jobs. Claimants attending community and technical colleges in 93.4, (the fall quarter of academic year 1993-94) were the first group to receive assistance from what currently is called the ESHB 1988 program. Program funding and the choice of new courses offered by community colleges grew substantially since 93.4.

Because the ESHB 1988 program primarily is a training program designed to help claimants who lose jobs (are displaced) gain skills needed to find new jobs and gain promotions at those jobs our net impact evaluation focused on determining:

1. Were the displaced unemployment insurance claimants targeted for aid at risk of experiencing unusually large earnings losses?

2. Did the community college training that was provided to displaced claimants raise their earnings above what they otherwise would be?

3. Did the ESHB 1988 program increase the displaced claimants' receipt of community college training that increased earnings?

In the first part of this study we reviewed evidence from other studies on the cost of job loss to displaced claimants, and our own analysis of the cost of job loss in Washington State. To carryout this work we used wage and claim records maintained by the Washington State Employment Security Department (ESD) covering 10 percent of the over 400,000 claimants who filed UI claims in Washington from 1989 through 1994 and who left preclaim employers for

whom they had worked at least 6 quarters. These data were analyzed with state of the art analytic techniques that we developed in earlier studies specifically for use with wage and claim records.

Our key findings from the analysis of the cost of job loss include:

- Published research shows that claimants who lost jobs that they held for less than 6 quarters suffer small temporary earnings reductions that are largely offset by UI payments, but they suffer no long-run reductions in earnings.

- Washington State claimants who lost jobs that they had held for at least 6 quarters experienced short-term earnings losses of about 50 percent, but about half of those losses were offset by UI payments.

- Those displaced claimants' permanent earnings declined more than $2,000 per year. This loss is just under 10 percent of their annual predisplacement earnings. However, since earnings would have grown substantially in the absence of job loss, we estimated the net loss at closer to 15 percent.

- Earnings losses were about twice as great for claimants who lost jobs held for 3 years or more compared to those who lost jobs held between a year and a half and 3 years.

- Holding tenure constant, losses as a percentage of predisplacement earnings were about as large for men and women as well as for college and high school graduates. Losses were greater for manufacturing workers than for nonmanufacturing workers, but those losses still were substantial for nonmanufacturing workers.

- Unemployment insurance did not reduce long-term losses, and prior research suggests that 1 year of college training would be required to offset losses of 10 percent. Even longer periods of training would be required to offset the larger than average losses of high-tenure displaced claimants.

In the second part of this analysis we examined the effect of community college training on claimants who lost jobs held for at least 6 quarters. To carry out this analysis, we matched community college transcript records provided by the Washington State Board for Community and Technical Colleges (SBCTC) to the wage-claim histories of all 400,000 job leavers who filed claims from 1989-1994 and who had worked at least 6 quarters for their preclaim employers. Roughly one-third of the claimants had attended community college at some point between 1989 and 1994, but not necessarily in the period following job loss. About 135,000 claimants had sufficiently long earnings histories to provide evidence about the long-term returns to community college training. We used state of the art estimating procedures that we developed for a similar study using analogous data from a community college in Pittsburgh, Pennsylvania. A key element of our technique was relying on measures of the incremental return to earning additional credits, not the difference in earnings between those who do, and do not, attend college.

Our key findings from the analysis of the returns to community college training include:

- Returns are high from "Group 1" credits, which are derived from technically oriented training that lead to jobs in relatively high-wage sectors such as health, computers, equipment repair, high tech manufacturing, and building trades. We

estimate that each Group 1 credit that the claimants earned raised their annual earnings by $63.20. Claimants earning 45 of these credits, a full-time academic year's worth, would more than offset the average loss following displacement.

- Returns are negative from "Group 2" credits, which are derived from less technically oriented training that tend to make up for educational deficits, provide general information, or lead to jobs in low-wage sectors such as clerical and sales work. We estimated that each Group 2 credit earned reduced annual earnings by $31.20.

- While in college, attendees pass up opportunities to earn substantial sums. We estimate that while in school $216 is given up for each credit earned. Thus, a full year's worth of credits would "cost" $9,720 in lost earnings. Even though UI benefits may make up half the loss, the high cost of earning credits makes attending college financially difficult for most claimants. Of at least equal importance, the boost in long-term earnings achieved by attending college must be sufficient to more than offset the net costs in order to make attending college worthwhile.

- What is learned on the job can be more valuable in raising future earnings than what is learned in college. Thus, college only increases future earnings when the knowledge gained in school is more valuable than the knowledge lost from sacrificing work experience. The loss of potentially more valuable work experience explains why the return from completing courses can be negative.

- On average, displaced workers attending community colleges earned only 7.7 Group 1 credits, and 9.3 Group 2 credits. Displaced claimants designated as ESHB 1988 participants on average earned 28.0 Group 1 credits and 25.1 Group 2 credits. A major reason for this difference is that roughly 40 percent of all displaced workers did not complete even one credit-bearing course, but almost all ESHB 1988 participants completed at least one such course.

- Our estimates of the long-term returns to college training were mostly based on work histories of attendees who left college before the start of the ESHB 1988 program. The period following the program's start was too short to obtain definitive results, especially for attendees who took many courses. However, it is likely that the returns were similar for ESHB 1988 participants and nonparticipants with the same characteristics taking similar courses.

- One ambiguity that we could not resolve is the return to the New Chance and related programs. Those programs fall in Group 2, but were developed too recently to separately determine their long-term returns. Thus, many of the Group 2 courses completed by ESHB 1988 participants may not have good analogues for comparison purposes.

In the third part of this study we analyzed trends in the number and characteristics of UI claimants who did, and did not, attend community colleges. A 10 percent sample of all 1.2 million workers filing UI claims from 1989 through 1994 was used for this analysis. This database included the wage,

claim, and college transcript variables used in the earnings analysis, plus variables obtained in special surveys conducted by ESD. The analysis was based on tabulations, not estimation of complex models.

Our key findings about the characteristics of claimants and their college attendance include:

- UI claimants fell into three groups. One quarter permanently left their jobs held at least 6 quarters. One-half left jobs held less than 6 quarters. One quarter returned to former employers within 5 quarters of claiming UI, but very few of these claimants had less than 6 quarters of experience with their former employer.

- Differences in unemployment duration indicate that the greatest difficulty finding jobs at comparable pay fell to claimants leaving their former industries who had high tenure--3 or more years of work with the same preclaim employer.

- Even before the start of the ESHB 1988 program, about 15 percent of leavers--claimants who did not return to former employers or industries--were enrolled in community colleges within 5 quarters of claiming UI.

- Among stayers--claimants who remained with their prelayoff employers--attendance rates were slightly less than 15 percent for those with low tenure. However, attendance rates were only about 7 percent for high-tenure stayers.

- Between the fourth quarter of 1991 (91.4) and 94.4, college attendance increased by more than 25 percent among leavers with more than 6 quarters of tenure, but did not increase for leavers with tenure of 1 to 5 quarters.

- The number of credits earned by leavers with 3 to 5 years of tenure nearly doubled between 91.4 and 93.4. Gains in credits earned were more modest (between 10 and 30 percent) for leavers with 1.5 to 3 years of tenure and those with 6 or more years of tenure, but the number of credits earned remained constant for leavers with less than 1.5 years of tenure.

In the last part of this study we more thoroughly analyzed college attendance and course completion before and after the start of the ESHB 1988 program. This study was limited to claimants leaving jobs held at least 6 quarters. The database used for this analysis included more than 30,000 claimants, of whom 1,500 completed at least one credit-bearing college course within 6 quarters of job loss. (The datafile was a subset of the file used for the third part of the study.) In contrast to our earnings analyses, we had to develop new procedures to estimate changes in attendance and completion. These topics have received little attention, but posed several formidable estimation problems. The primary problems were dealing with the lag between job loss and potential college entrance, and coping with a short period to follow claimants starting college in the second year of the ESHB 1988 program's existence.

Our key findings about the changes in college attendance and course completion before and after the start of the ESHB 1988 program include:

- There were substantial increases in college attendance following the start of the ESHB 1988 program. The probability that a displaced male claimant would complete at least one college course rose to 5.8 percent in both the fall and winter quarter of academic year 1994-95 from 4.2 percent for the same quarters of aca-

demic year 1991-92. Increases were about as large in both the spring and summer quarters of 1993-94.

- Increases in the probability of attending college were about one-third as great for women in our sample as for men, even though women were about 40 percent more likely than men to complete college courses prior to the start of the ESHB 1988 program.

- Increases in attendance translated into roughly proportionate increases in the number of courses completed. However, there was a modest increase in the number of courses completed per quarter for men starting college in academic year 1993-94.

- The increase in Group 1 courses completed was more than 25 percent for claimants starting college in academic year 1993-94, relative to those starting in years unaffected by the ESHB 1988 program.

- The increase in Group 2 courses was about 12 percent for claimants starting college in academic year 1993-94. However, the number of Group 2 courses completed fell for claimants starting college in academic year 1992-93. That difference could have been related to the maturation of the New Chance program that increased the availability of Group 2 courses specifically tailored to displaced claimants.

- Among men starting college in 1993-94, the increases in the number of Group 1 and Group 2 courses were about equal. Among women, the Group 1 increase was 40 percent greater than the Group 2 increase. However, on average only about one-third of courses completed by women are in Group 1, compared to just under half of the courses completed by men.

- Men were much more likely to attend college in the year following job loss than at other times, and attendance was very strongly influenced by local area unemployment, as well as by the availability of UI benefits and other types of income support such as having a working spouse. Women also were more likely to attend college in the year following job loss, but were much more likely than men to attend college at other times. Although women's attendance was strongly influenced by the availability of UI benefits, it was not influenced by local area unemployment.

Taken as a whole, the above findings provide a great deal of information about each of the three key questions posed at the beginning of this discussion.

First, the findings suggest that displaced claimants losing jobs they had held more than 6 quarters faced very substantial long-term earnings losses in the absence of retraining. This conclusion is supported both by direct measurement of long-term earnings effects and indirect measures of the incidence of job change and duration of unemployment.

Further, the findings suggest that displaced claimants bear high costs in terms of foregone earnings while attending college, and usually return to work quickly when jobs are available and UI benefits are unavailable. This evidence suggests that it is difficult for displaced workers to finance retraining on their own.

Second, the findings suggest that completing Group 1 courses substantially increases long-term earnings. Completing a full academic year's worth of Group 1 courses

would permanently raise annual earnings by about $2,800. This is about 13 percent of pre-displacement levels, and about equal to the earnings reductions experienced by displaced workers with moderately high tenure.

As far as we can determine, completing Group 2 courses reduces long-term earnings. However, there is some ambiguity about this result because we could not directly assess the return to New Chance and related courses which were tailored to the needs of displaced claimants.

Third, the findings suggest that after the ESHB 1988 program started in 93.4, there were substantial increases in the proportion of displaced claimants who completed at least one community college course. The increase was particularly great for men. Their quarterly attendance rates increased by about one-third from 4.2 to 5.8 percent.

The large increases in attendance translates into large increases in the number of courses completed. For women, most of the increases were among Group 1 courses, even though before 93.4, about one-third of courses completed by women were in Group 1. For men, the balance between Group 1 and Group 2 courses was about equal after the ESHB 1988 program became well established, but in favor of Group 1 courses in the first several quarters of program operations. It is plausible that the increase in Group 2 courses was associated with the expanded availability of New Chance and related Group 2 courses.

The final question is: What do these results tell us about the net impact of the ESHB 1988 program?

Three key findings follow from our analysis:

1. Some of the courses offered by community colleges had strong, positive effects on subsequent earnings.

2. The ESHB 1988 program emphasized the taking of technical, vocationally oriented courses that were most likely to raise earnings.

3. College attendance and completion of courses shown to raise earnings among displaced claimants markedly increased after the ESHB 1988 program started, and the increases grew as the program matured.

Technically, we cannot rule out the possibility that factors not taken into account in our analysis, but associated with the start of the ESHB 1988 program, were largely responsible for the increases. However, this does not appear likely. We, therefore, believe that it is reasonable to conclude that the ESHB 1988 program was responsible for most of the increases.

Our most clearcut conclusion is that some members of the target population--those who took many Group 1 courses and few Group 2 courses--benefited a great deal from attending college. What is not clear is the effect of taking New Chance and related courses. If the returns to those courses were much greater than that for basic education courses in Group 2, the effectiveness of the ESHB 1988 program would be much more broadly distributed and much greater overall. This ambiguity can only be lifted when sufficient time has elapsed to assess the effect of the New Chance program.

The details of the analysis discussed in this chapter are presented in the remainder of this report. In Chapter 2 we examine earnings losses following job loss. In Chapter 3 we present our analysis of the effect of community college attendance on earnings in the short run and long run. In particular, the chapter examines the returns to nine subgroups of courses that make up the two main groups. In Chapter 4 we describe the characteristics of UI claimants and their college attendance. Finally, in Chapter 5 we present our analysis of how attendance and course completion differed in the period before and after the start of the ESHB 1988 program. Additional details about the data processing steps and estimation procedures used to produce the findings in this report are presented in a separate technical appendix. The remainder of this chapter describes the ESHB 1988 program in more detail.

Description of the ESHB 1988 Retraining Program

In 1993, the Washington State legislature and governor enacted a law to significantly expand the state's job retraining efforts on behalf of the thousands of jobless workers who are forced to change careers in order to reenter the workforce.

ESHB 1988, the Workforce Employment and Training Act, provides state funding for employment and training services. The legislation established the Employment and Training Trust Fund (ETTF), which is funded by an employer tax of .12 percent of covered payroll. At the same time, the Act lowered employers' unemployment insurance tax by .12 percent. The Employment Security Department (ESD) collects the ETTF funds, and gives a portion to the State Board for Community and Technical Colleges (SBCTC) to implement the retraining program. The ESD also uses the funds for improvements to the state's employment security system.

Under the Act, retraining at the colleges may consist of either basic skills instruction or occupational training, including instruction to supplement apprenticeship training. Funds are also available for financial assistance and child care. In addition to financial assistance from the colleges, trainees can receive approval from the ESD to continue to receive unemployment insurance benefits while they are in training, subject to time limits established by other statutes.

Description of the ESHB 1988 Program

To qualify for the retraining program, individuals must be currently collecting unemployment insurance benefits, have been eligible to collect UI benefits in the past 24 months, or have received a notice of impending layoff from their employers and be eligible for UI benefits when laid off. First priority is given to those least likely to return to employment in their industry. In addition, aerospace workers are to be considered displaced workers if they become unemployed as a result of downsizing and restructuring of the industry.

Colleges have provided training by creating additional space in existing classes, adding new sections of high-demand training programs specifically for trust fund students, and creating new courses of study. Currently, all 32 of the community and technical colleges in Washington provide training through ESHB 1988 program funding.

The trust funds were initially distributed to the colleges based on an allocation model designed to provide basic capacity across the state, match institutional capacity with student demand, and fund programs in areas

with demonstrated labor market demand. To meet these goals, trust fund full-time equivalents[1] (FTEs) were distributed in three ways. First, one-third of the FTEs available in 1993-94 were allocated to colleges according to the share of unemployment beneficiaries and long-term unemployed persons in each college's service area. Second, a block of FTEs was reserved for displaced Boeing workers. Third, the remainder of the FTEs were awarded to colleges based on specific program proposals in response to SBCTC's Request for Proposals (RFP). Awarding of RFP FTEs is competitive. Colleges present their proposals for review to a committee including business and labor representatives.[2] The RFP process, which has evolved over the last 3 years, is designed to ensure that funding goes to those areas in the state with the capacity to provide displaced workers with vocational training in high-wage and high-demand occupations.

The total amount awarded to colleges through the formula allocation process has stayed the same over time. But because the size of the trust fund has increased each year, the amount of money allocated through the formula process has become a smaller relative share of the fund's entire budget. This in turn means that the amount given to colleges through the RFP process has grown steadily since the program's start in 1993.

Establishing ESHB 1988 Fund Eligibility

As mentioned, to qualify for ESHB 1988 funds a person must either have received unemployment insurance (UI) in the past 2 years or be eligible for UI benefits and have received notification of a pending layoff. In terms of the practical implications for colleges, it is generally agreed that students must meet these minimum requirements to establish eligibility: show positive identification; show confirmation that they meet the unemployment insurance benefit criteria; show a Social Security card; and give proof that they are unemployed through no fault of their own.

The program makes it is possible for all community college students to attend the new and expanded training courses offered, regardless of employment status. To ensure that the intended beneficiaries of the program, displaced workers, are served, the recruitment and enrollment policy gives them first access to the expanded training opportunities available through ESHB 1988. Included in this first-priority group are displaced workers enrolled in the Federal Economically Displaced Workers Adjustment Act (EDWAA) program (and displaced workers referred by an EDWAA service provider agency) who are eligible for ESHB 1988 services and who are not already enrolled in training at a college; and displaced workers in Employment Security Commissioner-approved training status not already enrolled in training at a college.

To code students as ESHB 1988 enrollees, colleges are instructed to mark those who received some special service that they would not have received, had ESHB 1988 not passed. Examples include received ETTF financial aid, received special advising from unemployed or displaced workers counselor; enrolled in ETTF-funded New Chance (prevocational assessment) class; enrolled in new or expanded ETTF-funded vocational program; or referred by ESD or PIC displaced workers program for training.

[1] Student FTE: One annual FTE is the equivalent of one student enrolled for 45 community college credit hours or 900 technical college contact hours in a year.

[2] The amount in the trust fund has grown each year due to changes in Washington State's economy - as the number of workers and average income increase, the dollar size of the trust fund increases.

ESHB 1988 Funded Instruction

Most ESHB 1988 funds have gone toward either the expansion of the existing training courses or the creation of new training programs. Courses that would fall into the category of meeting program goals include vocational and related basic skills and support courses, as well as what are frequently called New Chance programs, which are designed to help workers move into a new career.

Since program implementation, more than 130 new courses have been created. The courses fall into a wide range of categories, from diesel mechanics to environmental technology to emergency dispatcher.

2 Earnings Histories and Worker Displacement: How Did Washington State's Workers Fare?

Introduction

Reports about the "downsizing" and "reengineering" of U.S. corporations as well as sometimes contentious trade and environmental debates have heightened state and Federal policymakers' concerns about the repercussions associated with workers' job losses.[1] Such concerns follow from both empirical evidence and theoretical considerations indicating that workers' job losses may be followed by prolonged unemployment and substantial permanent earnings declines. There is increasingly greater recognition that job loss is costly for the workers involved, not only during the period when they are unemployed, but also in subsequent years when they are reemployed in new jobs. The explanations for this long-term consequence of displacement turns on the existence of some firm-specific attribute of the pre-displacement job that is not easily transferred from one job to the next.[2]

The finding that worker displacement leads to unemployment and lower earnings is not surprising. Indeed, the unemployment insurance system is designed to "insure" recipients against income losses associated with modest durations of unemployment. At the same time the system is designed so as not to create strong disincentives for the unemployed to delay their return to work. For the majority of job losers the unemployment insurance system provides substantial short-term relief. However, because most spells of unemployment are relatively short and because there is little evidence that long-term earnings reductions are associated with such spells, the argument for providing additional aid is not strong.

Although there is not strong evidence that unemployment leads to substantial long-term earnings losses for most groups of workers, the literature indicates that workers who are permanently displaced after many years of service with their former employer constitute an important exception. Such "high-tenured" workers incur large losses when they separate from their firms. Not only are they more likely to experience longer spells of unemployment, their new jobs are likely to pay substantially less than their old jobs.

Past studies in the academic literature report a consistent temporal pattern to these losses in which high-tenured workers' earnings decline substantially even before their separations, drop sharply, and rise rapidly during the 6 quarters following their separations, but recover only at a slow rate following

[1] For instance, on several occasions during the 1991-92 recession, Congress and the Bush administration debated whether to and in what form to provide extended unemployment benefits to recipients who had exhausted their regular benefits. Concern about workers' jobs losses also arose in the Congressional debate over whether the Bush Administration should have "fast-track" authority when negotiating a free-trade agreement with Mexico, and in discussions about how to protect the spotted owls in northwestern U.S. forests. The costs of preserving the spotted owls' habitat is borne disproportionately by workers in the lumber industry. These same issues arose during the Clinton administration during the debates over NAFTA and GATT and in the same discussions regarding the spotted owl.

[2] Explanations in the labor economics literature have focused on the presence of firm-specific "human capital," "matching," compensating differentials, efficiency wages, internal labor markets, or unions. See "Earnings Losses and Worker Displacement" later in this chapter for a summary of some of these views. For more details see Becker (1975), Jovanovic (1979), Stiglitz (1974), Lazear (1981), and Lewis (1986).

that initial earnings rise. In the long term, these losses appear to be permanent, especially when workers separate from firms that are experiencing mass layoffs.

The academic literature indicates that this pattern of earnings losses holds both for displaced male and female workers, younger and older workers, and workers displaced during different demand conditions. Further, these findings hold for workers formerly employed in a broad spectrum of industries within both the manufacturing and nonmanufacturing sectors. Finally, although differences in these losses' pattern exist among groups, the pattern is most closely linked to some unidentifiable attribute of the employment relationship that is common among firms. Even those high-tenured workers who find new jobs in similar industries to their old jobs experience significant earnings losses.

Because of the special attention warranted for high-tenured job losers, in this chapter we provide a brief survey of past studies of the consequences of worker displacement. In particular, two studies showing large long-term earnings losses use administrative data from other states that are essentially the same data as those used in this evaluation of the ESHB program. After describing these data and the earnings histories of displaced workers in those states, we then describe the earnings histories of displaced workers in Washington State. These earnings histories indicate that the experiences of displaced workers in Washington State are similar to those of their counterparts in other parts of the United States. Displacement has larger long-term consequences the more years of service workers had accumulated with their previous employer.

Who Is a Displaced Worker?

There is no consensus among researchers or policymakers as to the definition of a displaced worker. However, four elements are common in most descriptions of such persons:

1. Displaced workers have not been discharged for cause;

2. Displaced workers have permanently separated from their former employer or have only a very small likelihood of being recalled to their old jobs;

3. Displaced workers have had strong prior attachment to the industry of their predisplacement employer; and

4. Displacement is often identified as having resulted from structural changes in the economy rather than from the idiosyncratic fortunes of a single firm.

As a result of this characterization of displaced workers, studies on the consequences of job loss and of programs and policies to aid the victims of displacement have sought to limit their attention to unemployed workers with some or all of these characteristics. Recognition that job loss is potentially more costly for high-tenured workers has led the U.S. Department of Labor to often define displaced workers as persons having at least 3 or more years of tenure when they permanently lose their jobs.

The U.S. Department of Labor's Bureau of Labor Statistics provided the earliest description of the displaced population nationwide in its tabulations of responses to a special supplement to the January 1984 Current Population Survey. This supplement, known as the Displaced Workers Survey (DWS), provided the first clear picture of the number and characteristics of displaced

workers. It revealed that 13.9 million adult workers lost a job between 1979 and 1983 because of "plant closings, employers going out of business, or layoffs from which they were not recalled." The report's authors noted, however, that most of the job losers in the survey did not conform to the "general consensus as to who is and who is not a displaced worker," because such workers are generally regarded as having "spent many years in relatively high paying jobs." The authors found that only 5.1 million (or 37 percent) of these job losers in the DWS had been employed with the same employer for 3 or more years at the time of their job loss (Flaim and Seghal, 1985). Among those workers who lost a job after having been employed for 3 or more years, they were substantially more likely to have been males, employed in manufacturing, in the Midwest, and in semiskilled and unskilled occupations than the rest of the labor force.

Since 1984, the DWS has been repeated every other year and analysts have studied the changing characteristics of displaced workers during the last decade. Since the early 1980s, the rate of job loss appears to have risen somewhat as workers in the nonmanufacturing sector have become more prone to job loss. At the same time, while the risk of job loss remains the highest for younger and less-educated workers and for workers in blue collar occupations, the rate of job loss has risen the most for older and more educated workers, and for workers in the highest paying white collar occupations. In fact, for blue collar workers, likelihood of displacement declined nationwide during the 1990s (see Farber, 1996). The implication of these findings is that risk of displacement has become similar among different groups in the labor force and less concentrated in durable goods manufacturing and a few isolated industries.

Earnings Losses and Worker Displacement

The economic rationale for why workers may experience long-term earnings losses when they are displaced, especially those workers with many years of service with their former employers, is that there exists some firm-specific attribute of the job that is lost when the employment relationship ends. As an employee's tenure increases, this attribute likely increases in value and, as a result, job loss becomes more costly. Several practices lead to such an outcome. First, employees tend to acquire more "firm-specific" skills the longer they work for a company. These skills include familiarity with the company's processes, product lines, and "culture." This knowledge is usually less valuable to other employers. Consequently, when these workers lose their jobs some of their marketable skills disappear and they can expect to be paid less on their subsequent jobs.

A second practice that contributes to long-term losses is when the firm operates what is sometimes referred to as an "internal labor market." Under such circumstances the company has a policy of hiring its new workers into select "entry" level positions, but fills vacancies in higher paying positions by promoting "from within." Job loss by an employee with several years of service is likely to be from a higher paying non-entry-level position and likely result in the displaced worker seeking a new job at another company in a lower paying entry-level position. Finally, any tendency for firms to pay or promote employees based in part on seniority would cause employees with more years of service to be hit harder by job loss. By contrast, those with only a few quarters of tenure at the time of their job loss would have an easier time finding a new job offering similar rates of pay.

In light of these considerations, it is not surprising that the displacement literature reports (1) that job loss has short- and long-term effects on subsequent earnings; and (2) that these effects are largest for workers displaced after many years of service with the same employer. Studies using the DWS indicate that displaced blue collar workers' earnings losses rise at a rate of between 1 to 2 percent for each year of tenure with their former employer. Therefore, a worker displaced after 1 year on the job is predicted to be able to find a job paying nearly the same rate of pay as his old job. By contrast, an otherwise comparable worker possessing similar levels of schooling and working in the same industry, but who had been on the job for 20 years, is predicted to be able to find a job that pays between 20 and 40 percent less than his old job. These same studies indicate that the losses for displaced white collar workers are approximately one-half the size of the losses for blue collar workers (for a survey of this literature, see Jacobson, LaLonde, and Sullivan, 1993a; and Fallick, 1996).

Two studies that use the same type of administrative data available for this evaluation of the ESHB 1988 program confirm these findings about the long-term costs of displacement and the tendency for high-tenured workers to experience especially large losses. The first of these studies was based on a sample of workers from Pennsylvania who had been displaced as part of mass layoffs during the first half of the 1980s (see Jacobson, et al., 1993b). To illustrate the earnings histories of workers in these data, consider Figure 2-1, which is reproduced from that study. The samples depicted in the figure are of (1) workers who had 6 or more years of tenure when they were displaced from their firms during the first quarter of 1982; and (2) of their counterparts in the same firms who were not displaced during the entire sample period. As shown by the figure, during the mid-1970s these two groups had similar earnings levels. However, after displacement, the two groups' earnings diverge sharply and the gap remains large through 1986 when the data series ends. Therefore, 5 years after their job losses, the quarterly earnings of the displaced workers are approximately $2,000 below the earnings of their counterparts who were not displaced.

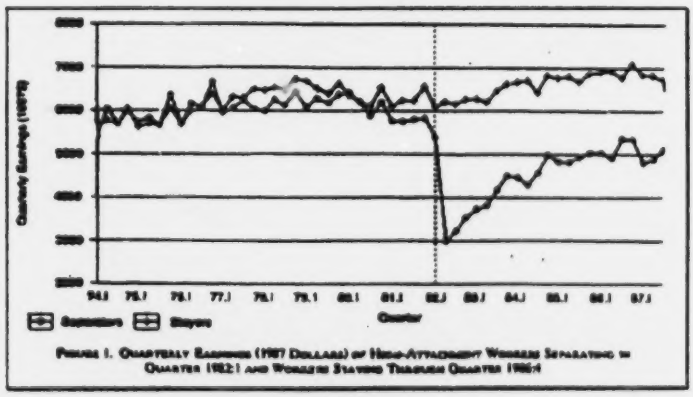

FIGURE 2-1

The Pennsylvania study indicated that "high-tenured workers separating from distressed firms suffer long-term losses averaging 25 percent per year." In addition, the study found that displaced workers' losses: (1) begin mounting before their separations; (2) depend only slightly on a person's gender or age; (3) vary according to the prevailing local labor market conditions at the time of displacement; (4) are not limited to a few industries; (5) can be large even for workers finding new jobs in firms in similar industries as their old employer; and (6) are especially large when the new job is in a different sector from the old job.

More recently, a comparable study of displaced workers in California reported similar results (see Shoneni, 1996). This study followed workers displaced during the early 1990s and found that long-run earnings losses were approximately 17 to 25 percent of predisplacement earnings. This study also found that these losses varied according to economic conditions prevailing at the time of displacement, and according to the industry of the worker's new job. However, like the Pennsylvania study, even workers finding new jobs in the same industry experienced significant long-term losses. As shown by Figure 2-2, which is reproduced from the California study, displaced manufacturing workers' earnings fell regardless of the industry of their new jobs. Nevertheless, finding jobs in similar types of industries as their previous ones was important for mitigating these long-term losses. For workers who returned to the same "two-digit SIC" or "four-digit SIC" industry, postdisplacement earnings in 1994 are still approximately 10 percent less than their earnings during the predisplacement period in the late 1980s. For workers who return to another manufacturing industry, the long-term losses rise only slightly. However, for those finding new employment outside the manufacturing sector, losses rise to nearly 30 percent of predisplacement earnings.

Earnings Histories of Displaced Workers in Washington State

The consequences of job loss in Washington State are consistent with the experiences of unemployed workers elsewhere. Job loss is associated with short-term earnings losses for all unemployed workers, but long-term losses are especially large only for those workers with a substantial number of years of service with their prior employer. This pattern holds both for unemployed workers who enrolled in one of the state's community colleges and for those who did not receive any schooling around the time of their displacements.

Earnings Losses and Tenure

As shown by Figure 2-3, prior to their job loss, the quarterly earnings of workers displaced during early 1992, who had 6 or more quarters of service at the time of their

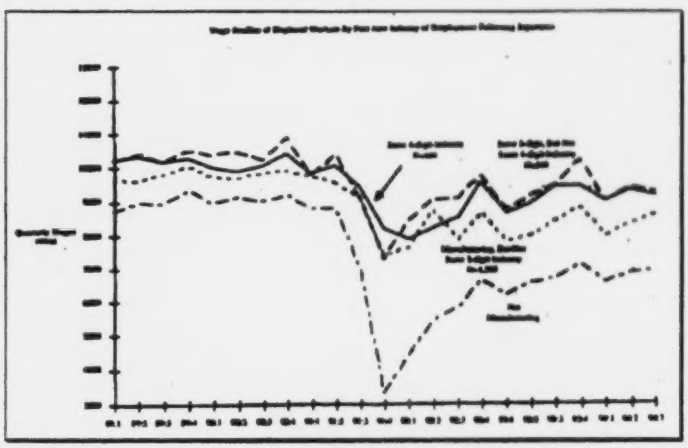

FIGURE 2-2

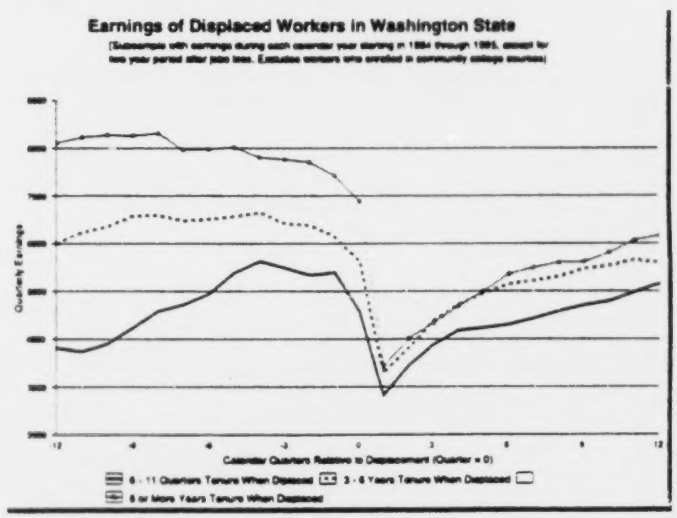

FIGURE 2-3

job loss, averaged approximately $5,500 (see the solid line). Consistent with the experiences of displaced workers in Pennsylvania and California, during the year prior to losing their jobs, earnings of the displaced begin to decline. Afterwards, their earnings rose, but at a decreasing rate. Consequently, 3 years (12 quarters) after their job losses, their postdisplacement quarterly earnings were still approximately $500 less than their predisplacement levels. This earnings deficit represents an earnings loss of about 10 percent.[3]

The positive relation between years of service with an employer and the potential long-term costs associated with job loss are demonstrated by the experiences of displaced workers with between 3 and 6 years' tenure with their former employer (see the dashed line in Figure 2-3). This group's earnings average approximately $6,500 per quarter before displacement. During the year prior to their job losses, their earnings begin to decline and fall sharply following their displacements. However, by the twelfth quarter following their job losses, their quarterly earnings are approximately $1,000 less than their predisplacement levels. This amounts to approximately 20 percent of predisplacement earnings. This result illustrates the findings reported in the displacement literature that something of value is permanently lost when experienced workers separate from their employers.

Unemployment Insurance Benefits and Income Losses

As shown by Figure 2-4, as the date of their job losses approached, the unemployment benefits received by the displaced workers began to rise. This rise in benefits received prior to the quarter that workers separate from their employers apparently results from increased short spells of temporary unemployment. However, once these workers permanently lose their jobs, the amount received in unemployment benefits rises sharply and falls almost as quickly because many claimants either exhaust their benefit entitlement or find new jobs.

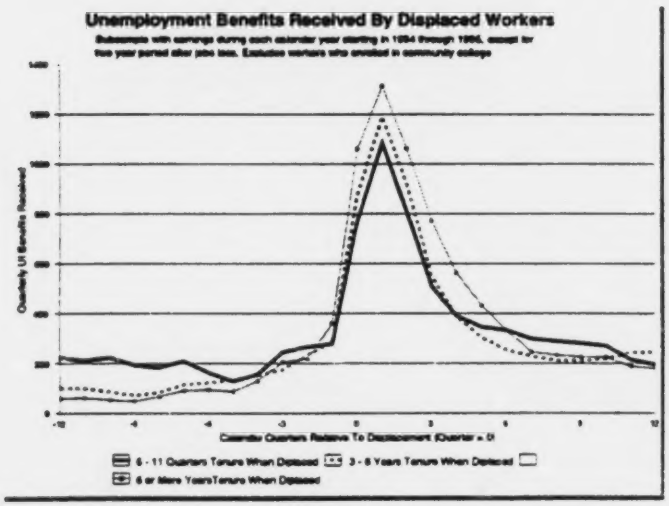

FIGURE 2-4

[3] The actual cost of job loss to the workers is likely larger than 15 percent because previous studies indicated that had they not been displaced, their earnings would likely have grown modestly.

One implication of the foregoing pattern of unemployment insurance benefit receipts is that the earnings histories depicted in Figure 2-3 overstate displaced workers' short-term income losses, but they closely approximate their medium and longer term income losses. At their peak during the first quarter following displacement, workers' UI receipts average more than $1,000. Therefore, the income losses during the first quarter following displacement are about $1,000 less than the earnings losses. However, by about the sixth quarter following displacement, the average level of unemployment benefit receipts has returned to approximately $100 of their predisplacement levels.

The close relationship between the apparent earnings losses depicted in Figure 2-3 and longer term income losses also is seen in the extent that unemployment insurance offsets the income losses for workers with low and high levels of tenure. As shown by Figure 2-4, the average quarterly unemployment insurance receipts are nearly the same for all the tenure groups, especially at the end of the sample period. Consequently, the income losses associated with displacement are larger for the high-tenure groups. As a result, the apparent earnings losses depicted in Figure 2-3 closely approximate displaced workers' long-term income losses. In the past, these long-term income losses have motivated policymakers' interest in the feasibility of using employment and training programs to reduce or perhaps even eliminate the losses associated with worker displacement.

Earnings Histories and Worker Characteristics

The administrative data from Washington State indicate that income losses associated with displacement are a general phenomenon and are not limited to a specific demographic group or to workers displaced from a particular sector of the economy. As other studies have demonstrated, women, minority, and less-educated workers, as well as nonmanufacturing workers all can experience long-term earnings losses associated with their displacements. However, these studies do indicate differences among groups in the magnitude of these losses. This finding indicates in our analysis of the impact of retraining (in the next chapter) that it may be important to take into account differences among groups in the magnitude of their expected losses, especially if the magnitude of the losses affects their propensity to enroll in community college courses.

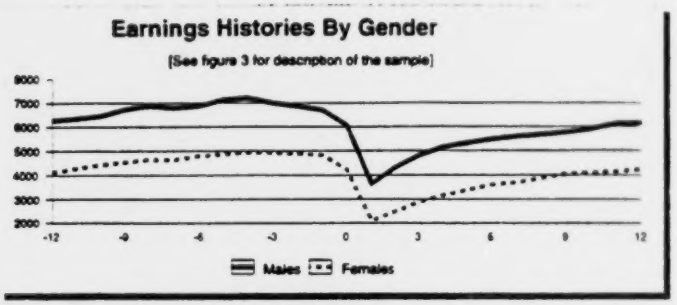

FIGURE 2-5

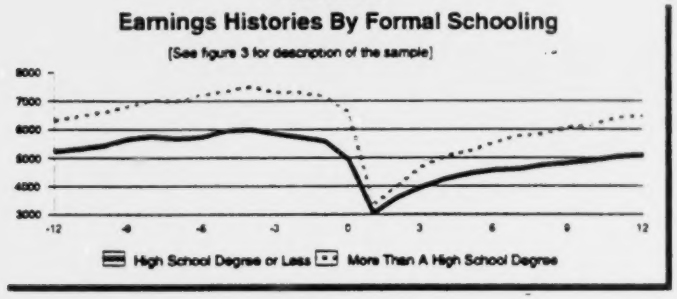
Earnings Histories By Formal Schooling
[See figure 3 for description of the sample]
High School Degree or Less
More Than A High School Degree

FIGURE 2-6

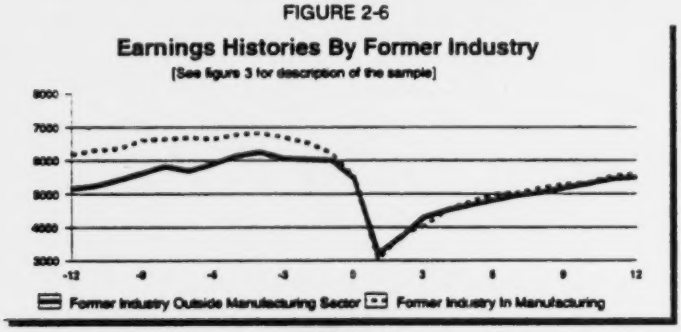
Earnings Histories By Former Industry
[See figure 3 for description of the sample]
Former Industry Outside Manufacturing Sector
Former Industry In Manufacturing

FIGURE 2-7

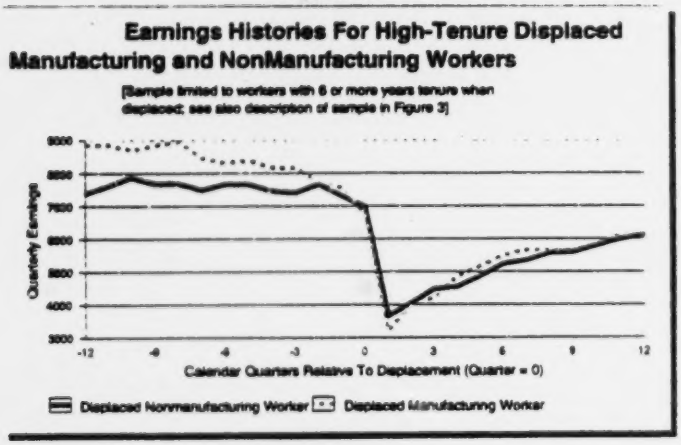
Earnings Histories For High-Tenure Displaced Manufacturing and NonManufacturing Workers
[Sample limited to workers with 6 or more years tenure when displaced; see also description of sample in Figure 3]
Quarterly Earnings
Calendar Quarters Relative To Deplacement (Quarter = 0)
Displaced Nonmanufacturing Worker
Displaced Manufacturing Worker

FIGURE 2-8

As shown by Figures 2-5 to 2-8, the quarterly earnings of displaced male and female workers (Figure 2-5), displaced educated and less-educated workers (Figure 2-6), and displaced manufacturing and nonmanufacturing workers (Figure 2-7) are significantly greater during the predisplacement period than in the postdisplacement period. Most important, the earnings during the quarter following displacement for nearly all of these groups are approximately $1,000 below predisplacement levels.

The earnings histories for displaced nonmanufacturing workers are instructive because they underscore the point that the losses associated with displacement are not limited to workers displaced from an isolated durable goods industry such as aircraft manufacturing. As shown by Figure 2-7, the earnings histories for these displaced workers are similar to the histories for all displaced workers. However, although there appear to be modest long-term earnings losses they are substantially smaller than the losses experienced by displaced manufacturing workers. The primary reason for this difference between these two groups' earnings losses is that the average tenure of displaced manufacturing workers is greater than the average tenure of displaced nonmanufacturing workers. As shown by Figure 2-8, when we compare the earnings histories of displaced manufacturing and nonmanufacturing workers who had 6 or more years of tenure at the time they lost their jobs, the earnings losses for both groups are substantial, although the losses for the manufacturing workers are larger. During the twelfth quarter following their job losses, the quarterly earnings of the displaced nonmanufacturing workers are still more than $1,500 below their predisplacement levels. This difference represents an earnings loss of approximately 20 percent of predisplacement earnings. Moreover, as

indicated by Figure 2-9, these earnings losses also closely approximate income losses for these workers because unemployment insurance receipts by this time have returned to nearly their postdisplacement levels.

The implications of this finding about large losses for displaced workers outside the manufacturing sector are that policies that target displaced workers in specific industries, such as the Federal Government's Trade Adjustment Assistance program, are probably not justified on equity grounds. The cost of displacement is closely associated with the duration of workers' attachment to a particular firm and is less affected by workers' demographic characteristics or former industry.

Conclusions

Both the theoretical and empirical literature on the costs of worker displacement indicate that, for at least some of the unemployed, job loss has adverse long-term impacts on earnings. Estimates of the long-term earnings losses for displaced experienced (high-tenured) workers are approximately 25 percent of predisplacement earnings, with smaller losses for workers displaced during relatively good economic times, for low-tenured workers, and for workers who find new jobs in their former industries. The losses would tend to be larger for workers displaced during especially bad economic times (e.g., Western Pennsylvania during the early 1980s), for workers with many years of service with their former employer, and for workers who are forced to accept jobs in different sectors of the economy.

For hard hit workers, well-established programs such as the unemployment insurance system offset only a small part of their losses. However, at the same time, benefits available through Federal training and adjustment programs do not, on average, begin to address the consequences of job loss. Experienced displaced workers are more likely than others to exhaust their unemployment insurance benefits. And more significant, the modest resources available through Federal programs do not allow displaced workers to make investments in their skills that are likely to offset a significant portion of their long-term earnings losses.

To better understand the foregoing point, consider that the literature on the economic returns to schooling indicates that 1 year of school raises a recipient's subsequent annual earnings by approximately 10 percent. Among workers who become unemployed after a year or two on the job, such an investment would be more than adequate to offset any long-term consequences of their job losses, because these workers' long-term losses are small in the first place. However, for more experienced job losers, we would not necessarily expect even 2 years of additional schooling to offset the losses associated with displacement, unless the schooling was unusually productive. It is the special needs of truly displaced workers that have motivated special interest in the feasibility

Unemployment Insurance Benefits Received By Displaced Manufacturing and Nonmanufacturing Workers

[Sample limited to workers with 6 or more years tenure when displaced; see also description of sample in Figure 3]

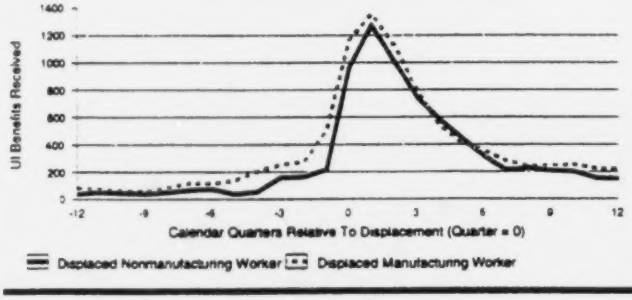

FIGURE 2-9

of using alternative retraining programs to offset the adverse consequences of their job losses.

Data Appendix

This chapter's analysis of earnings histories of covered wage and salary employees in Washington State is based on a subsample used for the analysis presented in the next chapter on the impact of community college schooling on earnings. (The sample is the 10 percent CWBH sample.) Besides the sample selection criteria described in the next chapter, in the analysis in this chapter we also excluded any worker who did not have at least some positive earnings in every sample year from 1984 through 1995, except for the 8 quarters following his or her job loss. This sample restriction ensures that each member of the sample was consistently attached to the Washington State's employed workforce throughout the sample period. This decision to further limit the sample probably leads us to understate the magnitude of the long-term earnings losses associated with displacement. In addition, we examined only separations that occurred prior to 1992.4 to ensure that we observed at least 12 quarters (3 years) of postdisplacement earnings for each member of the sample.

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3 The Impact of Community College Training on the Earnings of Displaced Workers

Introduction

In this chapter we examine the impact of training acquired in Washington State's community colleges on the earnings of displaced workers. As demonstrated in the previous chapter, the rationale for providing displaced workers with retraining is that their job losses are associated with the loss of marketable skills. As a result, their living standards fall not only because of an intervening spell of unemployment, but more important, because they usually receive lower earnings on their subsequent jobs. To mitigate the long-term earnings losses associated with being reemployed in a job that pays less well, the public sector has subsidized displaced workers' retraining. Policymakers expect that this "investment" raises the productivity of displaced workers and as a consequence their earnings on subsequent jobs.

To evaluate how retraining affects earnings, the analyst must compare the actual earnings of displaced workers after they are trained to the earnings that they would likely have received had they not enrolled in any community college courses. A substantial literature indicates that this comparison requires collecting data on trainees' and nontrainees' earnings that cover a sufficient period of time both before and following displacement and retraining, and devising a statistical framework for estimating the earnings of trainees in the absence of community college schooling and retraining.

This chapter begins by discussing the sample of displaced workers used to estimate the earnings effects associated with retraining received in community colleges in Washington State. Next, it provides a description of the earnings histories of this sample of displaced workers that is similar to the discussion of earnings histories in the previous chapter. The next section presents our analysis of the short- and long-term earnings impacts of retraining. This analysis presents separate sets of estimates by type of course taken, gender, age, years of service with the former employer, timing of the retraining, and individuals' ESHB 1988 status. Some observations conclude this chapter.

The Sample Used for the Earnings Impact Analysis

A prerequisite characteristic of any sample used to evaluate the earnings effects of community college retraining is that it be large. There are two reasons for this requirement. First, one problem with individuals' earnings in the U.S. labor market is that they are highly variable and, generally, less than one-half of this variability can be explained by differences among individuals' observed characteristics. This variability implies that large samples of individuals are needed to precisely estimate the earnings difference between two groups such as trainees and nontrainees. Another consideration affecting the size of the sample needed for the analysis is the expected size of the effect that analysts are trying to measure. A schooling or vocational training program that is anticipated to increase earnings by $10,000 requires a smaller sample than the one required for an evaluation that is anticipated to have only a $100 impact on earnings.

In this evaluation we expect that the impact of schooling would be modest, relative to the likely earnings of displaced workers in the absence of retraining. We believe this to be the case for two reasons: First, the size of the government's and the displaced

worker's investment in retraining is usually relatively modest; second, relatively few displaced workers who enroll in community college courses actually complete more than two classes. For these reasons we anticipate that to obtain reasonable precise estimates of the impact of retraining, we require a substantial sample of displaced workers who received training in the state's community colleges.

The only relatively inexpensive source of information that we can use to construct a large sample of displaced workers is the state's Employment Security Department's administrative quarterly earnings histories. Using information on state UI receipts as well as information on workers' primary employers, we can identify individuals who permanently lose their jobs and we can follow their earnings histories sometimes for substantial periods of time, both before and after their job losses. To create the sample that forms the basis for this study, we merged the earnings histories of displaced workers with the transcript data from Washington State community colleges. (A separate appendix describes the data used for this study in detail).

Imposing Sample Restrictions

Before we can proceed with our analysis of the impacts of schooling and retraining on earnings we must limit the sample of displaced workers in several ways. First, we choose to focus our analysis on displaced workers who remained attached to Washington State's wage and salary workforce. Specifically, this means limiting our sample to persons who received at least some wage and salary earnings in Washington State during each year starting with 1984 through 1995, except for the 2 years (8 quarters) following the quarter of their job losses. Our rationale for allowing for this 2-year gap is that adjustment to displacement may be especially difficult, or some displaced workers may choose to drop out of the labor force in order to pursue their retraining on a full-time basis.

We impose the foregoing earnings restriction on our sample to offset a shortcoming associated with the use of administrative data in program evaluations. When using such data, quarterly earnings exist only for persons employed in UI-covered jobs in Washington State. As a result, during any given quarter persons who were self-employed, employed in a UI covered job outside of the state, or out of the labor force would each appear in our data with zero earnings. There is no way to distinguish among these individuals. Previous work as well as our own survey indicate that these factors would cause approximately one-fourth of such workers to never appear to have positive earnings following their job losses. Including such individuals in the analysis raises the possibility that the zero earnings we observe for them substantially understates their actual earnings. This would tend to lead to a downward bias in our estimates of the returns to retraining. Conversely, excluding such individuals might lead to an upward bias in our estimates, because we may exclude from the sample persons who received retraining, but who never worked. However, the estimates we present here are unbiased for the sample of displaced workers who remained attached to Washington State's wage and salary workforce.

To ensure that our results are not overly sensitive to this restriction of our sample, we also experimented with a much weaker definition of attachment to Washington State's wage and salary workforce. In this alternative definition, we simply required that sample members receive earnings prior to displacement and during the last 2 years of our sample, 1994 and 1995. Our results

did not vary qualitatively according to our definition of workforce attachment, although the estimated effects of retraining tended to be smaller when we used the weaker definition. This result most likely means that retraining cannot be as effective for persons with weaker attachment to the workforce, because, in order to realize an earnings gain from retraining, an individual must work.

Our analysis of how displaced workers who remained attached to Washington State's workforce fared after retraining focuses on the experience of individuals displaced between the beginning of the third quarter of 1990 through the end of 1994. As indicated by Figure 3-1, somewhat less than one-half of our sample includes persons who were displaced either in the second half of 1990, 1991, or 1992. For these workers we have at least 3 years of data following their displacements. Therefore, this group's earnings histories are the basis of our estimates of the medium- and long-term effects of retraining.

We selected for our study displacements covering this time period in order to ensure that we observed community college training acquired by displaced workers at least 1 year before their job losses. (The transcript data that we received begins with courses taken starting in the third quarter of 1989). We also decided to examine the effect of training acquired before displacement because, to the extent that workers' anticipated their job losses, this retraining may be part of the readjustment process. We believe that our decision to include such schooling in our analysis is justified because the amount and type of community college training received before job loss may affect the return to additional training after job loss.

We also restricted our sample of displaced workers in several other ways in order to focus on individuals for whom the effects of retraining would likely be of the greatest policy interest. First, we limited our analysis to adults who were between 22 and 60 years old. We make the former age restriction to our sample because of the traditional policy interest in the displaced as a group of experienced workers who require retraining assistance and also because studies of the economically disadvantaged population suggest that youth respond differently to retraining services than adults. We impose the latter age restriction because the medium- and long-term earnings effects of retraining are likely to be small for persons close to retirement. Further, displaced workers in the 60- to 65-year-old category are more likely than individuals in other age groups to disappear from the administrative records following their displacements. Presumably, this disappearance results from the prevalence of early retirement among this age group. As shown by Figure 3-2, a majority of displaced workers in our sample were in their 30s or 40s when they lost their jobs. However, our sample includes significant percentages of younger and older displaced workers so that we can examine how the effect of retraining varies by age of the recipient.

Figure 3.1: Distribution By Year of Displacement

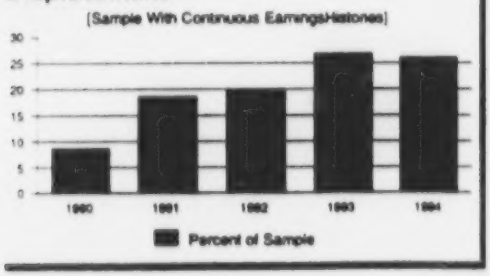
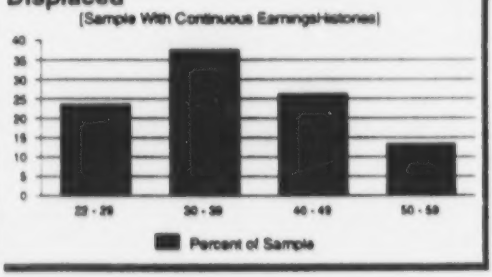


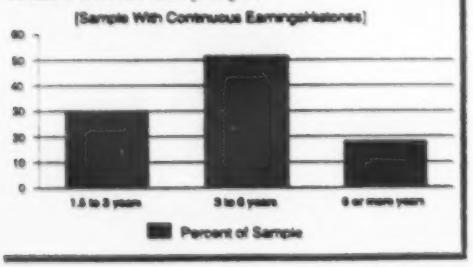
Figure 3.2: Distribution By Age When Displaced



Another restriction that we impose on our sample is that workers must have accumulated at least 6 quarters of service with their predisplacement employers. As discussed earlier, we exclude workers with few quarters of service (tenure) with their former employer because such individuals do not fall within common definitions of a displaced worker. On both theoretical and empirical grounds, the adverse effects of job loss for this group of unemployed workers are likely to be small. However, the returns from community college schooling may be just as large for this group as it is for workers in our displaced workers sample.

Another reason for excluding unemployed workers with very few quarters of tenure with their former employers is that such workers tend to have unstable earnings histories. Because of the demonstrated importance of past earnings histories for obtaining reliable estimates of the returns from retraining, we would be considerably less confident in any impact estimates based on such a subsample of displaced workers. As shown by Figure 3-3, despite this tenure restriction, the vast majority of our sample had fewer than 6 years of service with their former employer when they lost their jobs. In particular, approximately 30 percent of our sample consists of persons with only 1.5 to 3 years tenure when they were displaced. We believe that the estimated returns to retraining presented below for this group are likely good predictors of the returns for persons with less tenure at the time of displacement, but who also had relatively stable job histories.

Figure 3.3: Distribution By Tenure With Former Employer



Characteristics of the Sample

Our sample of displaced workers included 37,932 individuals who enrolled in community college courses in Washington State; nine percent of this group were designated as participants in the ESHB 1988 program[1]. In addition, our sample also included 91,495 individuals who were displaced during the same time period, but who never enrolled in any community college courses.

The top part of Table 3-1 shows the characteristics of displaced retrainees and nontrainees in our sample. Displaced workers' participation in retraining is not random. Participants are younger, and they are substantially more likely to be female. Further, they appear to have suffered larger earnings losses around the time of their displacements. This evidence indicates that simple comparisons between the mean earnings of the retrainees and nontrainees may be misleading, but there is no way to be certain of the direction of the bias. Because retrainees are younger, their earnings would likely grow more rapidly than the nontrainees even in the absence of schooling. But because a larger share of retrainees are female, and females tend to have more slowly growing earnings over their careers, the retrainees'

[1]Claimants attending technical colleges were excluded from this analysis because administrative data on this population were not available for a sufficiently long period to assess long-term effects.

Table 3-1
Characteristics and retraining received by displaced workers with stable earnings histories
[Average characteristics and credits completed]

Characteristics	All	Non-ESHB Completers[1]	ESHB sub-sample	Nontrainees
	Displaced Workers Who Enroll In Community College Courses			
Quarter of Job Loss	1992:IV	1992:IV	1993:III	1992:IV
Fraction Female	0.46	0.48	0.43	0.35
	(0.50)	(0.50)	(0.49)	(0.48)
Fraction Minority	0.15	0.11	0.13	0.14
	(0.35)	(0.31)	(0.34)	(0.34)
Manufacturing Worker	0.30	0.28	0.61	0.27
	(0.46)	(0.45)	(0.49)	(0.44)
Age When Displaced	36.2	34.9	38.7	38.6
	(9.2)	(9.0)	(8.9)	(9.5)
Tenure When Displaced (in quarters)	16.1	15.6	20.4	16.3
	(6.9)	(6.7)	(6.8)	(6.9)
Credits Completed				
Total Credits	17.0	23.7	53.2	-
	(29.1)	(29.3)	(41.5)	
"Group 1" Credits	7.7	10.7	28.0	-
	(18.7)	(19.2)	(29.4)	
"Group 2" Credits	9.3	13.1	25.1	-
	(18.0)	(19.8)	(30.1)	
ESHB Subsample	0.09	0.0	-	-
Observations	37,932	20,014	3,226	91,495

Notes: Sample of Washington State wage and salary workers between the ages of 22 and 60 years who were laid off from their jobs between the beginning of the third quarter of 1990 through the end of 1994, who had earnings during each year starting with 1984 until 1995, except for the 2 years (8 quarters) following the date of their job losses, and who had accumulated at least 6 quarters of tenure with their former employer prior to their displacements. The tenure variable is truncated at 45 quarters for all observations. "Group 1" and "Group 2" credits are described in Table 3-2. The standard deviations are in parentheses.

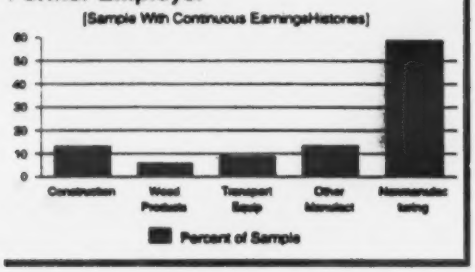
[1]Completes at least one course. Virtually all claimants designated as an ESHB participant complete at least one course.

earnings might be expected to grow more slowly than those of the nontrainees. Our statistical framework developed below explicitly accounts for these and other potential sources of bias in our estimates.

As indicated earlier, a common misconception about displaced workers is that they are most likely to have lost jobs in manufacturing industries. Instead, we observed that the likelihood of displacement affects workers in all sectors of the economy, and this has become increasingly the case for nonmanufacturing workers during the 1990s. The figures in Table 3-1 indicate that only 30 percent of displaced workers who received training had lost jobs in the manufacturing sector. As shown

by Figure 3-4, approximately 5 percent of the sample were formerly employed in the forestry, wood products, or paper and allied products industries, less than 10 percent were formerly employed in the transportation equipment sector, and somewhat more than 10 percent of the sample were formerly employed in all other manufacturing industries. Although nonmanufacturing workers account for 70 percent of displacements, manufacturing workers are more likely to be displaced than other workers (i.e., the percentage of manufacturing workers in our sample is larger than the share of total employment in manufacturing). Nevertheless, the results of our study address generally the effects of retraining for unemployed workers and not simply the experiences of a subset of workers such as those displaced from aircraft manufacturing, or wood and paper products industries.

Figure 3.4: Distribution By Industry of Former Employer



Turning to an examination of the quantity of training received by the college attendees, we find that there is considerable variation in this attribute among individuals in our sample. As shown by column one of Table 3-1, displaced workers acquired on average 17 credits of schooling.

Another component of retraining besides its quantity is the content of the retraining. Community colleges in Washington State offer a remarkable array of courses. Indeed, the number of offerings is far too large to be able to estimate the earnings impact of any particular course. However, these courses can be placed in categories according to their subject matter and we can then estimate the effect of having completed courses in particular categories on subsequent earnings. When we examine the type of credits completed by displaced workers we found it convenient to classify courses according to the scheme summarized in Table 3-2.

Table 3-2. Classifications of Washington State community college classes

Group 1.	More Technically Oriented Vocational courses
	Health related courses
	Technical/professional courses
	Technical trades
	Science/math academic courses
Group 2:	Less Technical Courses
	Sales/service courses
	Vocational courses (not in Group 1)
	Social science/humanities courses
	Personal health/PE/consumer oriented courses
	Basic skills education
	Other courses

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We also aggregated these categories of classes into two groups, more quantitative or technically oriented vocational classes ("Group 1" courses) or less technically oriented vocational classes or nonquantitative academic classes in the humanities and the social sciences ("Group 2" courses). Our rationale underlying this first classification is twofold. First, a small number of categories may make it more likely that we could measure with some precision the different effects of these two types of courses. Second, the labor economics literature indicates that for more than a decade the "returns" to quantitative skills have risen relative to other skills in the economy. Further, skills acquired in Group 1 courses are more likely to prepare the retrainee for a higher paying job. Accordingly, in this analysis we should allow for the possibility that the gains associated with community college courses differ in the same way. This aggregation of community college classes indicates that workers who were displaced between 1991 and 1994 were somewhat more likely to complete Group 2 courses than Group 1 courses. As shown by Table 3-1, retrainees completed 9.3 credits worth of Group 2 classes compared with 7.7 credits worth of Group 1 classes.

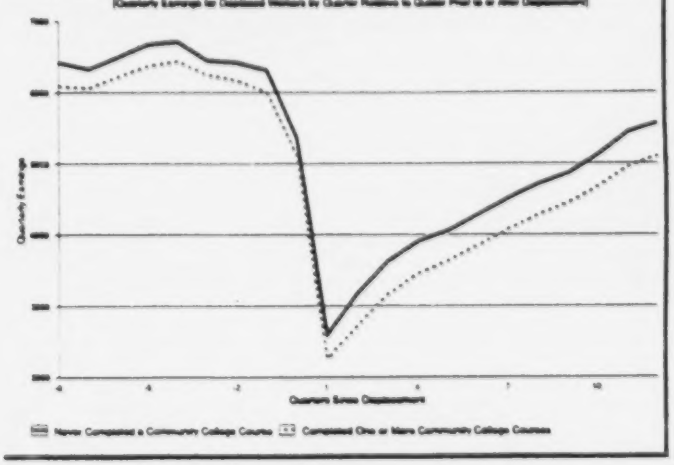
There are some important differences in the amount of schooling obtained by displaced workers designated as ESHB 1988 program participants and other retrainees. As shown by the table, the ESHB 1988 subsample acquired approximately three times as much schooling, but, unlike the full sample of retrainees, this training led to the earning of more Group 1 than Group 2 credits.

Analysis of the Mean Earnings of Displaced Workers

Before turning to a discussion of our statistical framework used to address some of the issues raised in the previous section, we examine how displaced workers' earnings vary according to their enrollment in community college classes. Such an analysis is somewhat misleading, but we have found it to be helpful for understanding displaced workers' earnings dynamics and the plausible magnitude of any formal estimate of the impact of retraining.

As shown by Figure 3-5, the earnings dynamics for displaced workers in this sample mirror the pattern described in the previous chapter. The average quarterly earnings of both displaced workers who enroll in community college courses and of nontrainees rise somewhat from the start of the sample, but begin to decline even before the quarter that they separate from their jobs. At this point their earnings fall sharply before rising again during the 6 quarters following their job loss. However, beyond this point, the rate of earnings recovery slows substantially. This slowdown is associated with declining movement from unemployment to employment. By the end of the sample period, or 3 to 4 years after their job losses, workers' earnings still remain below their predisplacement levels.

Figure 3.5: Earnings of Community College Enrollees and Non-enrollees



The earnings levels reported in the table indicate that any gains associated with community college training are likely to be modest. Further, they indicate that whatever training acquired by community college enrollees was not sufficient to offset the size of the losses associated with displacement. Although these conclusions are clear from Figure 3-5, analysis of the figure does not help us understand whether community college retraining was effective or socially beneficial. In the absence of a more rigorous analysis of the Washington State data, it would be reasonable to assert on the basis of Figure 3-5 that the earnings recovery for displaced workers was modest because they did not receive enough retraining.

There are two reasons why the information presented in Figure 3-5 cannot be used to evaluate the impacts of community college retraining for displaced workers. First, those who enroll in community college courses experienced larger losses associated with their displacements. In terms of the figure, their postdisplacement earnings drops tend to be larger. According to this view, the continued gap between the enrollees and comparisons hides positive returns to schooling. Second, the postdisplacement gap between enrollees' and nontrainees' earnings also may result, in part, because retrainees voluntary reduce their time in the workforce in order to concentrate on their schooling. Under this interpretation of Figure 3-5, part of the postdisplacement earnings gap between enrollees and comparisons results from this "investment" in retraining. As a result, the simple comparison between the mean earnings of the enrollees and comparisons likely mask a significant return to schooling.

In this section, we have simply compared the earnings histories of displaced workers who are retrainees and nontrainees. But before we can draw any conclusions from such a comparison, we must account for differences among displaced workers that affect their propensity to acquire varying amounts of retraining at Washington State community colleges. A statistical framework for accounting for such differences is developed in the technical appendix to this chapter. This framework enables us to control explicitly for any differences among displaced workers' fixed characteristics, both observed and unobserved, as well as any differences in some observed time varying characteristics that may be related to the receipt of retraining. These time varying characteristics include age, age interacted with individuals' demographic characteristics, such as their ethnicity and gender, and prevailing economic conditions in Washington State.

The Impact of Community College Schooling on Displaced Workers

The results generated from our statistical framework indicate that retraining affects earnings in two ways: First, retraining is associated with lower earnings during the quarters that displaced workers are in enrolled in community college classes. This finding suggests that even if government programs paid for tuition and supplies--the direct costs connected with retraining--the displaced workers themselves incur a significant cost in the form of foregone earnings when they acquire additional training. Second, retraining is associated with increased earnings during quarters after displaced workers are not in college. However, this finding results because of the positive returns associated with completing courses teaching quantitative or technically oriented vocational subject matter. Taking additional courses in nonquantitative areas not only does not lead to a rise in subsequent earnings but is actually associated with lower

earnings. We discuss these two sets of findings separately.

Earnings Losses While Participating in Retraining

One of the most consistent findings in our study is that displaced workers' earnings are lower while they are enrolled in community college classes. More important, this earnings deficit is larger, the more classes that students takes during an academic quarter. As shown by the first row of Table 3-3, under the heading "While in School," enrolling and completing in community college classes during an academic quarter is associated with an earnings penalty during the quarter of $216 dollars per credit taken. Therefore, a student taking 15 credits of classes during the quarter would expect to have earnings that on average were approximately $3,000 less than if they were not in school. Further, in results not shown in the table, we find that this earnings loss is substantial no matter what the level of a displaced workers' formal education and becomes larger as they complete more credits in Washington State community colleges.

The foregoing set of findings were extremely robust to alternative analytic methods, to the types of courses taken by the student, and to the student's demographic and labor market characteristics. As shown by column one of Table 3-3, the earnings losses associated with enrolling in community college courses were substantial among a wide variety of courses. We find similar losses when students are enrolled in more technical ("Group 1") as well as less technical ("Group 2") skills. (See the classification described earlier.) Further, disaggregation of community college courses into the types of skills taught reveals substantial losses per credit for all types of classes. The smallest adverse effects were for classes teaching technical and trades vocational skills, where an additional credit was associated with a $164 reduction in quarterly earnings while in school.

One explanation for the foregoing findings on displaced workers is that time spent learning new skills has a cost in terms of time spent away from the workforce. According to this interpretation, these earnings losses are an important cost of retraining displaced workers. For example, the earnings of a displaced worker who acquired 90 credits or 2 years of schooling would, on average, be $18,000 lower ($3,000 per quarter times 6 quarters) than an otherwise comparable worker who did not acquire any schooling during the same period. As indicated in the previous chapter, this earnings loss modestly overstates the income loss, because displaced workers receive unemployment insurance payments. However, even if the direct costs of retraining are completely subsidized, any benefit from retraining must offset these sizable losses in order for it to have been a worthwhile investment for the individual.

An alternative explanation for these losses suggests that the foregoing estimate overstates somewhat the indirect costs of retraining. Some workers who have difficulty finding new jobs may substitute time spent searching for employment for time in school. If the likelihood of a job offer is very low even when searching intensely for a new job, such a use of their time may be productive. As a result, our measures of the earnings loss associated with retraining may be too large, because if those workers were not enrolled in a community college they would be without work. Our estimate implicitly assumes that in the absence of receiving more training, the earnings of a displaced workers would be similar to the

Table 3-3. Returns to displaced workers from community college schooling in Washington State
Impact of a credit on quarterly earnings
(standard error)

	While In School	Fst. Qtr. Loss	Long-Term
Returns per CC Credit	-$216.1	-$14.2	$4.1
	(2.5)	(1.0)	(0.5)
Returns from "Group 1" Credits	-202.7	-18.4	15.8
	(3.3)	(1.5)	(0.8)
Returns from "Group 2" Credits	-228.9	-10.4	-7.8
	(3.3)	(1.5)	(0.8)
Returns by Type of Credit Earned			
Group 1:			
Health Related	-207.8	-31.1	29.8
	(8.4)	(3.8)	(2.0)
Technical Trades Vocational	-163.5	-17.4	19.4
	(4.1)	(2.0)	(1.0)
Academic Science/Math Courses	-290.2	-20.3	[4.5]
	(12.9)	(6.4)	(3.3)
Technical/Professional Vocational	-267.4	-11.7	[2.7]
	(6.0)	(3.1)	(1.6)
Group 2:			
Service/Administrative Support	-186.0	-12.0	-2.3
	(5.7)	(3.3)	(1.7)
Social Science/Humanities	-206.0	-10.9	-2.2
	(6.5)	(3.2)	(1.6)
Basic Skills Courses	-246.2	-14.5	-12.3
	(8.9)	(5.6)	(2.9)
Other Vocational Courses	-261.8	[-4.5]	-15.0
	(8.0)	(4.6)	(2.3)
Homemaking/PE/Consumer Related	-427.2	[5.6]	-19.9
	(28.4)	(15.2)	(7.6)

Notes: For description of the sample used in the analysis see notes to Table 3.1. Estimates are based on a specification described in the appendix that takes into account differences among individuals' fixed characteristics, their age (which varies over time), interactions between demographic characteristics and age, the earnings impact of displacement, differences in the impact of displacement by gender, age, job tenure when displaced, former industry, level of formal schooling, and the impact of general economic conditions in Washington State.

[ ] Indicates estimates not statistically different from zero at the 5 percent condition level or better.

earnings of similar displaced claimants who took less training or did not attend college. If this assumption is incorrect (and we have no reason to believe that it is), then some of the lower earnings would be due to trainees who earned more credits having a lower likelihood of finding jobs following displacement.

Earnings Gains Associated With Retraining

In our analytical framework, we estimate the earnings gains associated with retraining by making two comparisons. First, we compare the earnings of displaced workers who complete at least one community college class to comparable counterparts who never enrolled in or completed a community college class during the sample period. This approach follows closely that used in the training evaluation literature. In those studies evaluators usually only know whether or not an individual received training and do not know much about the intensity or content of the training. The training effect estimated using this approach measures the effect of the "average" training experience on earnings.

Our second comparison exploits the unusual information available for this study about the quantity and content of retraining. Because of its availability, we also can estimate the effect of retraining by comparing the earnings of displaced workers who completed many courses to comparable counterparts who completed relatively few courses. The advantage of this comparison as opposed to the comparison between trainees and nontrainees is that it accounts for differences in motivation that lead some individuals to enroll in community college courses in the first place, while leading others to forego the opportunity for retraining. This consideration may be important if these motivational differences also are associated with individuals' ability to adjust to their displacements. For example, if those who enroll in community college courses are more motivated and therefore also would have readjusted to displacement better than their counterparts who did not enroll in such courses, then conventional estimates of the impact of retraining will be too large. We believe our second set of estimates accounts for this possibility.

The analytical approach described here follows closely that used in the large literature on the returns to formal schooling. In those studies, analysts estimate the "return" to a year of formal schooling by comparing earnings of individuals with different schooling levels. In this study, we estimate the training effect by comparing the earnings of displaced workers who have completed different numbers of community college courses or credits. In the following discussion, we first present the average impact of community college training on displaced workers.

Conventional Estimates of the Returns to Retraining

In the more conventional analysis in which we compare the regression-adjusted earnings of the retrainees and nontrainees, we find that during the period covered by our sample, enrolling in some community college courses was associated with increased earnings. As shown by Panel A of Table 3-4, displaced workers who completed at least one course earned on average $51 per quarter more than their counterparts who did not complete any community college courses. This amount equals approximately 1 percent of their postdisplacement earnings.

As shown by Panel B of Table 3-4, a closer look at the data reveals that this rise in earnings masks an important adjustment period following the completion of community college courses that is associated with additional modest earnings losses. (This relationship is summarized in the second row of Panel A.) During the first quarter after retraining, quarterly earnings are -$367 less than comparable nontrainees. (To compute this last figure, multiply - $592.4 times 1 and add $225.2.) This finding suggests that retrainees experience a brief period of readjustment when reentering the workforce that is associated with additional earnings losses or no earnings gain. This result underscores the importance of

Table 3-4. Conventional estimate of the returns from completing community college courses [Based on the regression-adjusted difference between trainees' and nontrainees' earnings]

Panel A

Impact of Enrolling In One Or Mores Courses on Quarterly Earnings After Leaving School

	Fst. Qtr. Loss	Long-Term
Average Effect on Earnings	-	$51.1
		(10.7)
Variable Effect of Earnings*	-$592.4	$225.2
	(26.4)	(12.7)

Panel B

Average Impact on Quarterly Earnings After Last Quarter in Community College

	Quarters Since Last Community College Quarter				
	1	2	4	8	12
Earnings Increase	-$367.2	-$71.0	$77.1	$151.2	$175.8

Note: Estimates based on a specification described in the appendix that takes into account differences among individuals' fixed characteristics, their age (which varies over time), interactions between demographic characteristics and age, the earnings impact of displacement, differences in the impact of displacement by gender, age, job tenure when displaced, former industry, level of formal schooling, and the impact of general economic conditions in Washington State.

*These figures are used to compute the estimates presented in Panel B. Earnings impact of retraining by quarter since leaving a community college is equal to -592.4(1/k) + $225.2, where k is the number of quarters since the last quarter in a Washington State community college.

having several years of postschooling earnings data when evaluating the impacts of retraining.

This initial earnings gap between retrainees and nontrainees (after we take into account differences between the two groups) falls quickly and 3 years (12 quarters) after completing their last community college course, the retrainees earn approximately $175 more per quarter than comparable nontrainees. (To compute this last figure multiply -$592.4 times 1/12 and add $225.2.) Over the longer term, we estimate that retrainees earn approximately $225 per quarter more than observationally equivalent nontrainees. This earnings impact constitutes an approximately 5 percent rise in quarterly earnings. As demonstrated in the previous chapter, the size of the losses incurred by displaced workers are too large to be offset by this earnings gain from retraining.

However, this gain from additional schooling is comparable to, if not somewhat larger than, the returns widely reported in the schooling literature. As indicated in Table 3-1, the displaced workers who enrolled in community college courses acquired on average approximately three-eighths of a year worth of schooling. Therefore, the 5 percent gain reported in the previous paragraph was generated from less than 1 full year of schooling. If we project the three-eighths of a year to a full year of schooling, the conventional estimate of the impact of retraining implies an annual return to schooling of approximately 13 percent. For those displaced workers who can be encouraged to acquire this much schooling, the gains from schooling would appear to offset a substantial portion of their earnings losses.

Returns From Community College Training

The unusually detailed information about the quantity and content of retraining available for this evaluation enables us to improve upon the methodological approach used in conventional evaluations of training programs. As a result of exploiting this detailed data, we conclude that the conventional estimate of the impact of retraining that we presented in the previous subsection is too large. We believe that the problem with the conventional estimate is that does not adequately control for differences in unobserved characteristics between retrainees and nontrainees that affect earnings growth after displacement. In other words, those individuals who were motivated enough to enroll in community college courses around the time of their displacements, would likely have adjusted more fully to their job losses than otherwise similar nontrainees who did not enroll in such courses. Therefore, comparisons between retrainees and nontrainees probably overstates the gains from community college training.

We address this potential shortcoming of the conventional estimate of the impact of retraining by examining how postdisplacement earnings varies by the number of credits completed. Intuitively, we estimate the gains from retraining by comparing two individuals who are comparable in as many aspects as possible, except one individual completed many credits and the other only completed a few credits. An important characteristic that these two hypothetical individuals share is that they both decided to enroll in community college courses.

As shown by the last column of the first row of Table 3-3, over the long term, completing additional community college credits raises

quarterly earnings by an average of 4 dollars. Because of our large sample size and long earnings histories for each individual, this figure is relatively precisely estimated. However, the previous column indicates that retrainees experience a period of readjustment after completing community college courses. During the first quarter after they complete their last course, their earnings are approximately 10 dollars (add - 14.2 to 4.1) per completed credit less than what they would have expected to receive, had they not enrolled in any courses.

This short-term deficit falls quickly, but it once again underscores the importance of having several years of postschooling data when evaluating the returns to training. The practical significance of this finding for this study is that the ESHB 1988 subsample enrolled in courses later than most displaced workers in our sample, and also completed more credits. As a result, we observe them during a shorter postschooling period. Consequently, we are more likely to observe the ESHB 1988 subsample solely during the postschooling adjustment period when earnings impacts are small or even negative. For such individuals, we require several more years of data to assess the longer term impacts of training. It is for this reason that this study carefully examines the earnings of displaced workers leaving college before the ESHB 1988 program began. This larger subsample more typically began enrolling in courses in the early 1990s so that we can follow their earnings histories for a long period. For this group we can obtain very precise estimates of the long-term effects of training that we believe also are relevant and helpful to policymakers solely interested in the ESHB 1988 experience.

To make our presentation of the foregoing estimate of the long-term earnings impact of retraining more concrete and to show how it compares with a conventional estimate of the training effects, consider what impact retraining has on the earnings of the typical enrollee. As noted above, the typical retrainee completes 17 credits or three-eighths of a year of training. To obtain our estimate of the long-term effect of training for the average retrainee, we multiply this figure (by the long-term impact of a completed credit on earnings, i.e., 4.1). Accordingly, we estimate that retraining raised long-term earnings of displaced workers on average by about $70 (4.1 times 17) per quarter. This figure is less than 2 percent of postdisplacement earnings. Moreover, it is only one-third as large as the conventional estimate of retraining (given in Table 3-4). This difference between the two estimates indicates that indeed displaced workers who enroll in community college courses are very likely more motivated than comparable counter parts who do not enroll in such courses. Therefore, it is our view that the conventional estimate overstates the impact of community college training.

Although it appears to be the case that retraining has only a very modest effect on displaced workers' earnings, a closer examination of the transcript data reveals that this result occurs because the retrainees take many classes that are associated with essentially no earnings gains or additional earnings losses. When we divide the credits completed by retrainees (according to the classification described earlier) into whether the course taught quantitative, "Group 1," as opposed to nonquantitative, "Group 2," skills, we find substantial differences in the returns to retraining.

Completing Group 1 courses is associated with a significant rise in subsequent long-term earnings and only a modest loss during the readjustment period after leaving school. As shown by the second row of Table 3-3, completion of Group 1 courses raise long-term quarterly earnings by nearly $16 per

credit. The previous column indicates that retrainees' earnings are approximately $3.00 per completed Group 1 credit less than what they would have expected to receive, had they not enrolled in any such courses. However, this small deficit has disappeared by the second quarter after leaving school.

The estimated impact of Group 1 courses is very substantial compared with estimates of the returns to formal schooling reported in the schooling literature. For example, if a displaced worker completed 45 Group 1 credits, we would estimate that his or her long-term quarterly earnings would be raised by more than $700 per quarter. This increase would be equal to approximately 16 percent of postdisplacement earnings. However, this example overstates how Group 1 courses affect the earnings of displaced workers in Washington State. As indicated by Table 3-1, the typical displaced worker who enrolled in community college courses completed only 7.7 Group 1 credits. This figure implies that such courses raised her or her long-term earnings by approximately $120 (7.7 times 15.8) per quarter.

As promising as these findings are regarding the beneficial impact of Group 1 credits, our findings regarding the benefits of Group 2 credits are correspondingly grim. As shown by the third row of Table 3-3, completion of Group 2 courses lowers long-term quarterly earnings by nearly $8.00 per credit. Because displaced workers in our sample complete on average 9.3 Group 2 credits, this estimate implies that these courses are associated with a long-term quarterly earnings loss of approximately $73. In addition, the second column of the table indicates the short-term losses associated with Group 2 courses are even larger. During the first quarter after leaving school, displaced workers who completed only Group 2 credits receive quarterly earnings that are $18 per credit less than what they should have expected to receive had they not enrolled in any such courses.

Extrapolating these estimates about the long-term impacts of Group 2 courses is instructive for those involved in counseling displaced workers about retraining opportunities. For example, consider the consequences of a displaced worker returning to school full-time and completing 90 credits (2 years) worth of Group 2 courses. Our results indicate that this person should expect to have quarterly earnings that are approximately $700 less than otherwise similar workers who did not enroll in any community college courses. Such an extrapolation is potentially misleading because very few displaced workers actually complete 90 credits of Group 2 courses. Further, because so few displaced workers complete this number of courses, we do not expect this extrapolation to be very precise. However, the qualitative result is clear: taking time out to enroll full-time for 2 years in Group 2 courses is not likely to benefit displaced workers, but in fact may cost them approximately 2 years worth of labor market experience or job tenure.

Why Are the Returns to Group 1 Credits Larger?

To explore the source of the large returns to Group 1 credits, we subdivided the courses offered by Washington State community colleges into nine categories. We then re-estimated our statistical model to obtain estimates of the returns to credits in each of these categories. From this exercise, it is clear that the large returns from Group 1 credits result almost entirely from large returns to courses in health-related fields and in the technical trades vocations. Although two other categories, the technical/professional vocations and academic science/mathematics courses generate positive

returns per completed credit, neither estimate is statistically significant. For all other categories of courses, the estimated returns to retraining are negative.

As shown by Table 3-3, we estimate that a completed credit in a health-related or in a technical trades course raises long-term quarterly earnings by about $30 and $19, respectively. These large gains indicate that displaced workers who successfully pursue programs in these areas offset a large share if not all of the earnings losses associated with displacement. For example, suppose a displaced worker decided go back to college and major in a health-related field. Further, suppose that over the course of 2 years this retrainee completed 40 credits in health-related courses and 50 more in other academic courses. The health-related courses are associated with a long-term earnings gain of approximately $1,200 per quarter (40 times 29.8). As shown by the table, the returns from the academic courses would depend on the mix of mathematics and science classes compared with social science and humanities classes. However, because the impact of these types of courses is relatively small, $4.5 for the math and science credits and -$2.2 for the social science and humanities credits, these courses usually will have only a slight effect on our estimate of the gains from completing majors in health-related fields. If we change the example to consider a displaced worker who completes a program in the technical trades vocations, our results indicate that the quarterly earnings gains for these majors would be about two-thirds as large (40 times 19.8). In the previous chapter, we discussed the findings that displaced workers' long-term earnings losses were approximately $1,000 per quarter. Consequently, for the types of students who can successfully complete programs in these two areas, retraining can offset most if not all of the losses from displacement.

For most other programs, our results suggest that displaced workers are probably better off searching for alternative employment than seeking retraining. Our results for one set of courses is noteworthy because they bear on the likely success of retraining the least skilled among the displaced. As shown by the last row of the table, returns to basic skills courses are substantially negative. Although students who take such courses do not tend to take many community college courses, our results indicate that on average such courses do more material harm than good. Completing one quarter course would be expected to lower long-term quarterly earnings by about $36. We find these results unsurprising in light of recent findings in the academic literature indicating that programs providing basic skills that culminate in a GED have little impact on long-term earnings. However, these results represent only the average impact of such courses. It is possible that some students successfully complete such classes and are then in a position to pursue a program in an area that promises higher returns. The extent to which this occurs, if at all, is not a question that we have been able to answer in this report.

Returns are Similar for Men and Women

We also examined how the gains from Group 1 and Group 2 courses varied by gender. This examination is worth making because nearly one-half of the displaced workers who enroll in community college schooling are women and the training literature indicates that women tend to benefit more from retraining than men. As shown by Panel A of Table 3-5, the same pattern that we described earlier for the full sample of retrainees also holds for males and females separately. Both males and females

Table 3-5. Returns to displaced males and females from community college schooling
Impact of a credit on quarterly earnings
(standard error)

	While In School	Fst. Qtr. Loss	Long-Term
Panel A			
Returns From "Group 1" and "Group 2" Credits			
Returns from "Group 1" Credits			
Males	-$215.4	-$16.6	$15.2
	(3.9)	(1.8)	(0.9)
Females	-168.7	-19.9	17.5
	(6.2)	(2.8)	(1.4)
Returns from "Group 2" Credits			
Males	-287.8	-12.8	-11.1
	(4.6)	(2.2)	(1.1)
Females	-176.1	-9.2	-5.1
	(4.6)	(2.1)	(1.1)
Panel B			
Returns by Type of Credit Earned			
Group 1:			
Returns from Health-Related Credits			
Males	-274.6	-44.5	37.0
	(15.3)	(7.4)	(4.0)
Females	-182.5	-28.7	28.1
	(10.1)	(4.5)	(2.2)
Returns from Technical Trades Credits			
Males	-172.0	-15.7	18.8
	(15.3)	(2.1)	(1.1)
Females	-82.4	[-12.4]	25.6
	(10.1)	(8.4)	(4.3)
Academic Science/Math Courses			
Males	-324.9	[-15.0]	[4.6]
	(16.6)	(8.4)	(4.3)
Females	-209.5	-24.7	[5.6]
	(20.6)	(9.8)	(5.0)
Technical/Professional Vocational			
Males	-312.5	-11.5	[1.3]
	(7.7)	(4.0)	(2.1)
Females	-193.6	-11.9	5.2
	(9.5)	(4.9)	(2.4)

Table 3-5. Returns to displaced males and females from community college schooling (continued)
Impact of a credit on quarterly earnings
(standard error)

	While In School	Fst. Qtr. Loss	Long-Term
Group 2:			
Service/Administrative Support			
Males	-218.4	-12.0	-6.5
	(9.0)	(5.5)	(2.7)
Females	-173.6	-15.0	[0.5]
	(7.5)	(4.2)	(2.1)
Social Science/Humanities			
Males	-268.0	-18.3	-5.3
	(9.2)	(4.5)	(2.2)
Females	-161.6	[-6.4]	[0.3]
	(9.3)	(4.5)	(2.2)
Basic Skills Courses			
Males	-290.6	-19.0	-15.8
	(11.8)	(7.7)	(4.0)
Females	-192.0	[-10.1]	-8.3
	(13.6)	(8.2)	(4.2)
Other Vocational Courses			
Males	-334.3	-9.0	-14.8
	(10.1)	(2.1)	(2.9)
Females	-139.7	[3.9]	-16.1
	(13.1)	(8.4)	(3.8)
Homemaking/PE/Consumer Related			
Males	-353.8	60.5	[-17.4]
	(45.3)	(25.0)	(12.1)
Females	-457.6	[-27.3]	-21.5
	(36.6)	(19.1)	(9.8)

Notes: See notes to Tables 3-1 and 3-3.

experience similarly large returns to Group 1 courses. Likewise, completing Group 2 credits is associated with lower long-term earnings. There are two notable differences between the impacts of retraining on male and female displaced workers. First, while in school, retraining is associated with significantly larger earnings losses for men. This result should be expected because since men tend to earn more than women, if they work less to go to college they will give up more in earnings. This finding points out that, all other things equal, men tend to be more costly to train than women. This would explain in part why the participation rate of males in retraining is less than the participation rate of females.

Another notable difference between the impacts of retraining on male and female earnings is that completion of Group 2 courses is associated with larger earnings losses for males than for females. This finding is consistent with our contention that at least some of the costs associated with such courses are the long-term effects of lost labor market experience. Because the returns to labor market experience are larger for males than for females, its is not surprising that the long-term losses associated with having completed Group 2 courses are larger for males than for females.

The foregoing similarities and differences between the pattern of returns for male and female trainees also holds when we separately examined the returns to the nine categories of classes. As shown by Panel B of Table 3-5, the long-term effects of completing credits in each category are similar for men and women. For only one of the categories was the difference statistically significant: sales/administrative support. Courses completed in this area had no long-term impact on the quarterly earnings of women and were associated with a decline in the quarterly earnings of men. In two other areas, the health-related fields and social science and humanities academic courses, the differences between the two groups' long-term impacts were marginally significant. However, in both instances the results were qualitatively similar. As a result of this analysis, we conclude that retraining has similar effects on the earnings of male and female participants. To the extent that fewer categories of courses are associated with long-term earnings losses for women and the "in school" losses are less for women, one may still say that women may benefit somewhat more from the retraining than men.

Returns Are Similar Among Retrainees of Different Ages

We next examine how the returns to retraining vary according a worker's age when displaced from his or her job. To the extent that older workers are farther removed from formal schooling, returning to school to learn new skills may be more difficult and have smaller returns. However, we find that the long-term earnings gains from Group 1 courses are approximately the same among the age groups studied. As shown by the last column of Table 3-6, completion of Group 1 courses raises quarterly earnings of males by about $16 per credit earned. The somewhat lower returns estimated for retrainees who are 40- to 49-years-old is not statistically significantly different from the estimated returns for the other age groups. (We found that retraining had a similar impact on the earnings of females of different ages.)

Table 3-6. Returns to displaced workers by age at displacement
[Impact of a credit on quarterly earnings of displaced males]
(standard error)

	While In School	Fst. Qtr. Loss	Long-Term
Returns from "Group 1" Credits			
Age:			
22 - 29	-$158.2	-$8.8	$16.5
	(7.4)	(2.9)	(1.5)
30 - 39	-212.6	-17.0	16.4
	(6.2)	(2.8)	(1.4)
40 - 49	-248.5	-22.7	12.6
	(8.3)	(4.1)	(2.2)
50 - 60	-269.9	-40.8	16.0
	(14.1)	(8.1)	(4.5)
Returns from "Group 2" Credits			
Age:			
22 - 29	-242.5	-9.8	-8.1
	(8.0)	(3.3)	(1.6)
30 - 39	-323.3	-12.4	-14.5
	(7.5)	(4.1)	(2.2)
40 - 49	-310.1	-13.4	-19.0
	(10.4)	(5.9)	(3.2)
50 - 60	-243.4	-11.1	-17.0
	(16.0)	(9.4)	(5.0)

Notes: See notes to Tables 3-1 and 3-3.

Turning to the impacts of the Group 2 courses, we estimate that younger displaced workers lose less by taking such courses than workers between the ages of 30 and 60. Note for older workers the adverse effect of taking one Group 2 course would approximately offset any beneficial effect of taking a Group 1 course. By contrast, we predict that younger workers who took the same number of both types of courses would still experience modest long-term earnings gains associated with their additional schooling.

Returns Are Similar Among Retrainees With Different Levels of Tenure

Another important concern about retraining programs for displaced workers is whether they generate earnings gains for those likely hit the hardest by job loss. As discussed earlier, the literature indicates that workers with the most years of service with their employer tend to experience the largest long-term earnings losses when displaced.

Therefore, it would be important to know whether the gains reported from community college training were representative of the experiences of workers with the most tenure with their former employer.

As shown by Table 3-7, male displaced workers in the highest tenure category experienced the largest gains from Group 1 courses. Further, as shown by the lower panel of the table, they also did not experience earnings losses from completing Group 2 classes. These findings indicate that those workers who experience the largest losses in connection with their displacements benefit at least as much if not more than other displaced workers from the opportunity to participate in retraining activities.

Another significant finding reported in Table 3-7 is that the returns from schooling tend to be relatively similar among tenure categories. For example, the difference between the long-term impact per Group 1 credit for the 1.5 to 3 year tenure group and the 6 or more years tenure group are not statistically significant. Although this analysis did not explicitly examine the returns from retraining for displaced workers who had accumulated less than 6 quarters of tenure when they lost their jobs, these results suggest that the returns for these individuals are likely similar to the returns reported in the table. (Our results for female displaced workers were qualitatively similar.)

Conclusions

In this chapter we examined whether displaced workers' in Washington State benefit from taking courses in Washington State's community colleges. As observed in the previous chapter, those workers who have relatively stable work histories in the state do experience substantial and long-term earnings losses associated with their displacements. The questions of interest, therefore, are: how much more do displaced

Table 3-7. Returns to displaced workers by tenure with former employer
[Impact of a credit on quarterly earnings of displaced males]

	While In School	Fst. Qtr. Loss	Long-Term
Returns from "Group 1" Credits			
1.5 to 3 years tenure	-$153.3	-$6.9	$18.1
	(7.5)	(2.9)	(1.4)
3 to 6 years tenure	-252.7	-17.9	12.3
	(5.4)	(2.4)	(1.2)
6 or more years tenure	-187.6	-37.7	22.6
	(9.3)	(6.2)	(3.9)
Returns from "Group 2" Credits			
1.5 to 3 years tenure	-243.7	-2.2	-12.1
	(8.5)	(3.7)	(1.7)
3 to 6 years tenure	-316.7	-17.3	-11.4
	(6.4)	(3.1)	(1.6)
6 or more years tenure	-253.1	-28.9	2.0
	(11.3)	(7.3)	(4.2)

Notes: See notes to Tables 3-1 and 3-3.

workers earn because they received additional training; does this additional training offset a significant portion of their earnings losses; and does the availability of unemployment insurance help mitigate these losses?

The analysis presented in this chapter indicates mixed answers to each of these questions. First, we found that displaced workers benefit on average from retraining in the state's community colleges. Each completed credit raised earnings by approximately $4.00 per quarter. This increase implies that a full year of such schooling would raise these workers' postdisplacement earnings by approximately 4 percent. This estimated return from retraining was highly statistically significant. However, this impact is smaller than standard estimates of the return to formal schooling, and too small to offset the long-term losses that these workers should expect to result from their displacements. Further, the actual impact of retraining on subsequent earnings is even smaller than this 4 percent figure suggests, because the typical displaced worker who enrolled in community college courses received much less than 1 year worth of schooling.

One group that stands out as an exception was the ESHB 1988 subsample. As indicated by Table 3-1, this group of displaced workers received more than 1 year of additional training. (For comparison with the discussion in later chapters, note that in this chapter we examine how training affects the earnings of those displaced workers, including members of the ESHB 1988 subsample, who have stable earnings histories. Displaced workers without stable earnings histories, including those who happen to be in the ESHB 1988 subsample, are excluded from the analysis.) All other things being equal, we predict that retraining should have a larger impact on ESHB participants' earnings simply because this group participated in retraining more intensely than other displaced workers.

When we examine the source of the earnings impacts from retraining we found that they resulted entirely from completion of courses teaching more technically oriented skills. To be sure, nearly all the gains from retraining resulted from very large gains for displaced workers who completed courses in the health-related and technical trades vocations. We estimated that the gains associated with these courses were so large that it was reasonable to expect that successful completion of a major in these areas would offset much if not all of displaced workers' earnings losses.

While we documented the foregoing results indicate the considerable benefits from some types of retraining, we also found that courses teaching less technical skills not only did not benefit displaced workers, but often were associated with lower earnings. In other words, we would predict that a displaced worker who successfully completed a major in these areas would have larger long-term earnings losses than an otherwise comparable displaced worker who chose not to enroll in any community college courses. We believe that the losses associated with completing such courses result in part because working is a more productive option for the average displaced worker than pursuing retraining in a less technical skill. This finding indicates that persons who counsel displaced workers should make them aware of the possibility that retraining could make them even worse off and that it is important to choose an appropriate and marketable skill.

The pattern of impacts described above hold for several important groups in our sample. We found a similar pattern of results for males and females, younger and older

workers, and workers with very low tenure and with relatively high tenure when displaced.

Finally, what do these results say about the likely benefits of the ESHB program? Overall, the results indicate that the ESHB 1988 program is effective to the extent that it encourages greater participation in Group 1 courses. This Group 1 increases are particularly strong for women, who constitute nearly one-half of the displaced workers who enrolled in community college programs. That the increases are smaller for men than women may reflect the difficulty of finding many men who can and will pursue retraining in the health-related fields. However, the analysis presented in this chapter indicates that this nontraditional career for men is likely to generate high returns to retraining, just as greater participation in the technical trades vocations is likely to generate higher returns for women. Of course, not every displaced man and woman can succeed in these areas, but the results presented in this chapter indicates that at least on the "margin," there are likely additional gains from expanded participation in programs in these two areas.

CHAPTER 3
TECHNICAL APPENDIX

To measure the returns from community college retraining for unemployed workers in Washington State, we have considered and estimated several statistical models of the following general form:

Earnings (or hours or wage rates) of worker i at time t are equal to a "regular part" plus a "displacement part" plus a "training part":

$$y_{it} = \alpha_i + \gamma_t + \chi_{it}\beta + \delta_{it}(s_i, c_i) + \tau_{it}(s_i, f_i, l_i, c_i) + \varepsilon_{it}$$

For the "regular part" $\alpha_i + \gamma_t + \chi_{it}\beta$, we have taken χ_{it} to be a quadratic in age interacted with the four combinations female and minority group status. Including such controls is important. Workers in the community college (CC) population tend to be younger and thus, even without training, would tend to have more steeply rising earnings and wage rate profiles. The α_i parameters are person-specific fixed effects included to control for unobserved heterogeneity. Including such variables controls for all unchanging worker characteristics. In particular, it controls education completed before the sample period and for family background variables such as the level of parents' education. Similarly, the γ_t are coefficients of (calendar) quarter-specific dummy variables, which control for overall time effects such as the business cycle that affect earnings.

We parameterized the "displacement part" in two parts. First, we allowed a completely general time pattern with respect to displacement. This can be written as

$$\delta_{it}(s_i, c_i) = \delta_{t - s_i}.$$

Each δ_k can be thought of as the coefficient associated with a dummy variable for being a certain number of quarters relative to displacement. Letting $D_{it}^k = 1$ if worker i displaced at time $t - k$ (and $D_{it}^k = 0$ otherwise) then we can write

$$\delta_{it}(s_i, c_i) = \sum_k D_{it}^k \delta_k$$

where the sum runs over all the quarters relative to displacement that are observed in the data.

Because the likelihood of receiving retraining depends on the size of a workers' earnings loss associated with displacement, we also allowed the displacement effects to vary not only over time, but also by individuals' characteristics. To let displacement effects depend on characteristics, we defined variables of the form:

$F_{it}^1 = t - (s - 4)$ if worker i is displaced at time s and $s - 4 < t < s$, and $F_{it}^1 = 0$ otherwise;

$F_{it}^2 = F_{it}^1 F_{it}^1$;

$F_{it}^3 = 1$ if worker i is displaced at time s and $s < t$, and $F_{it}^3 = 0$ otherwise;

$F_{it}^4 = t - (s + 4)$ if worker i is displaced at time s and $s + 4 < t$, and $F_{it}^4 = 0$ otherwise;

$F_{it}^5 = F_{it}^4 F_{it}^4$

We then let the displacement effect be:

$$\delta_{it}(s_i, c_i) = \sum_m F_{it}^m c_i \varphi_k + \sum_k D_{it}^k \delta_k$$

That is, we introduced interactions of the F^m variable with individual characteristics. In particular we interacted them with dummy variables for sex, previous job in manufacturing, and sample group (cc, es, ot).

The most important part of the specification is how we handle the "training part." In the above specification, the effects of schooling are shown as depending on several factors: s_i - the total amount of schooling taken, f_i and l_i - the first and 1st quarters students were in the program, and c_i - the characteristics of the workers/trainees. To describe our specifications, we define the following variables:

$T_{it}^1 = 1$	if i is in school at time t, and $T_{it}^1 = 0$ otherwise;
$T_{it}^2 = 1$	if i has finished schooling at time t, and $T_{it}^2 = 0$ otherwise;
$T_{it}^3 = 1/(t - l_i)$	if i has finished schooling at time t, and $T_{it}^3 = 0$ otherwise;

The last term is the reciprocal of the amount of time since a worker last obtained credits if that worker is out of school.

To measure the training effect we interact the T_m variables with characteristics of individuals including the number of credits completed:

$$\tau_{it}(s_i, f_i, l_i, c_i) = \sum_m T_{it}^m c_{mi} \tau_m$$

The returns to training are then measured by the incremental effect of courses on earnings. Note that long run effects only depend on interactions of credits with T^2 since T^3 becomes negligible as the worker is out of school longer. For the period when workers are in school, T^1 is interacted with (among other variables) the number of credits per quarter for the period during which credits were earned. The incremental effect of additional credits per quarter on earnings in the schooling period is then deduced measured by the coefficients associated with these interactions.

4 The Number and Characteristics of Unemployment Insurance Claimants and Claimants Attending Community Colleges

This chapter describes the characteristics of 20- to 50-year-old unemployment insurance (UI) claimants in Washington State over the last 7 years and then examines those claimants' community college attendance. UI claimants are individuals who are laid off by their employers either permanently or temporarily, have sufficient earnings to qualify for UI benefit payments, file for UI benefits, are unemployed for at least 1 week, and receive at least one payment. Individuals who collected UI benefits within a 2-year period, have lost jobs, or are unlikely to be return to former employers, are eligible for the ESHB 1988 program. However, preference is given to claimants who are least likely to be recalled by their former employers and left employers in industries where employment is falling. Thus, our primary interest in this chapter is determining if there were changes in claims patterns that might affect the need for and value of community college, and observing changes in community college attendance that might have been induced by the ESHB 1988 program.

Claimant Characteristics

Whether a claimant is unable to return to the same employer or a similar employer is a key indicator of the need for retraining and other forms of adjustment assistance. Table 4-1 describes the percentage of claimants who 1 year after beginning a spell of unemployment:

- Return to the employer for whom they worked in the quarter before starting their unemployment spell.
- Do not return to the former employer and
  - have no new employer;
  - have a different employer in the same two-digit SIC industry;
  - have a different employer in a different industry.

The unit of observation of the tabulations in this chapter is the benefit year. A benefit year is the 52 weeks following an initial claim. The amount paid for each full week of unemployment and the number of full weeks that benefits can be received during the 52 weeks of the benefit year are set at the start of the benefit year. Thus, claimants entitled to $250 per week for 26 weeks would exhaust their entitlement after receiving $6,500 in benefits. It is possible to experience several different spells of unemployment in a benefit year, although the majority of claimants experience only

Table 4-1 Employer-change status by benefit year, by percentage

	Return to former employer	No postclaim employment	Different postclaim employer in	
			Same SIC	Different SIC
1990	27.8	6.2	16.2	49.9
1992	26.5	9.0	17.3	47.3
1994	29.7	14.1	16.0	40.2
1989-1994	27.4	9.3	16.6	46.6

one spell. Thus, technically, the tabulations summarize claims activity over all spells in 1 benefit year. Each benefit year leading to at least one payment that is established by sample members from 1989 through 1994 is included in the tabulations. Thus, a person with 3 benefit years containing at least one payment would generate three observations. For each benefit year, job change status is based on comparing the claimant's employer in the quarter before the benefit year is established to the employer in the quarter in which the benefit year ends. If there are no employers in the quarter the benefit year ends, we look at employers in the first quarter that earnings are received after the benefit year ends.

On average, about 27 percent of claimants return to their former employers, 9 percent do not show any subsequent employment covered by UI records, 17 percent change employers but stay in the same industry, and 47 percent change employer and industry.

The percentage of claimants who show no employment appears to grow over time. However, this trend probably is a result of the wage records ending in the fourth quarter of 1995 (95.4). Thus, the length over which we can observe a return to work shrinks as we approach the end of 1995.

While any claimant may benefit economically from attending college, only certain claimants are likely to experience large long-run earnings reduction in the absence of retraining. Virtually all claimants needing the most assistance to offset earnings losses leave former industries. About 47 percent of claimants change industries. However, industry change is only costly (or unexpected) for a minority of industry changers.

Previous analysis suggests that high tenure is the best indicator that a worker's job change will be costly. Low-tenure workers frequently voluntarily change jobs and, generally, those changes have a positive or neutral effect on long-term earnings. In sharp contrast, high-tenure workers rarely change jobs voluntarily, and in most cases involuntary job change leads to large reductions in long-term earnings.

Table 4-2 shows employer change status by tenure group. Almost half of all claimants have tenure of less than 6 quarters when they file a UI claim. On average, claimants with less than 6 quarters of tenure worked about two-thirds of a year for their former employers. Among these very low tenure claimants, less than 5 percent are reemployed by former employers 4 quarters after filing a UI claim. The vast majority of

Table 4-2. Employer-change status by tenure, by percentage

	Return to former employer	No postclaim employment	Different postclaim employer in		All statuses
			Same SIC	Different SIC	
Tenure (quarters)					
1-5	4.9	19.5	19.8	55.8	49.2
6-12	19.7	17.3	17.1	46.0	23.2
13-24	52.4	11.8	10.5	25.4	16.0
25+	62.9	10.7	7.1	19.3	11.6
All tenures	23.4	16.6	16.1	43.9	100.0

very low tenure workers have histories of frequent job change and are employed in industries where employer change is common as a result of workers' voluntary actions, as well as by firms being forced to close or reduce employment. Thus, employer and industry change is a normal occurrence following a spell of unemployment, for claimants with very low tenure, while returning to former employers is highly unusual for this group.

In sharp contrast, less than 12 percent of all claimants have more than 6 years of tenure at the point they establish a claim. About 63 percent of those claimants return to their former employer, while only about 20 percent change industry. Although high-tenure industry changers are a small fraction of all claimants, they are the group that experiences by far the largest earnings losses, and are employed in industries where most workers have been employed by the same firm for long periods, and closings or even large permanent employment declines have been rare in the past. Thus, for relatively high-tenure workers, returning to former employers is a normal occurrence following a spell of unemployment, and losing jobs is relatively rare. Displacement, not being able to return to former jobs when it is expected, generally is the major concern of public policy. This type of job loss also imposes large costs on employers in compensation to separating workers, and it may require firms to pay higher wages to workers who remain to compensate them for a heightened perception of the risk of job loss.

About 16 percent of claimants have 3 to 6 years of tenure at the point they file claims. Although they are a little less likely to return to former employers, this group shows a similar pattern of job change to workers with 6 or more years of tenure. About 23 percent of claimants have 6 to 12 quarters of tenure at the point they file claims. Recall and job change rates for this group are about half way between the rates for very low tenure and high-tenure claimants.

In summary, Table 4-2 shows that about one-quarter of claimants have relatively high tenure of 3 or more years, and in the absence of downsizing or closings, they would remain with their employers for a long period. About one-quarter have low tenure of 6 to 12 quarters, and are more than twice as likely to leave their employers as high-tenure workers. About one-half have very low tenure of less than 6 quarters, and are extremely likely to leave their former employer within a year, independent of those employers' long-term employment trends.

Earlier research discussed in Chapter 2 documented the strong positive correlation between tenure and earnings loss. Our Pennsylvania analysis also showed a strong

positive association between the length of UI claims and long-term earnings losses. Table 4-3 shows the fraction of claimants who received 1 to 15 UI payments in the 52 weeks following filing a UI claim, by employer change status and tenure. We use 16 or more weeks of UI payments as a measure of economic distress rather than the actual number of UI payments, because during part of the period studied, extended benefit programs greatly increased the total number of payments that could be received. Table 4-3 shows that about 50 percent of claimants who return to their former employers receive 1 to 15 payments. The next lowest figure is 38 percent for claimant who move to a different employer in the same two-digit industry. The percentage is a bit lower for claimants changing industry, and lowest, 25 percent, for claimants who do not return to work.

Importantly, the biggest differentials in the percentage of claimants collecting 1-15 weeks of UI is among high-tenure claimants. Among that group, 60 percent of those returning to the same employer collect less than 16 payments, compared to 20 percent who do not return to a job, and 27 percent for those who change industries.

The fraction of claimants with short periods of unemployment rises with increasing tenure among workers returning to the same employer and remaining in the same industry. In contrast, the fraction of claimants with short periods of unemployment uniformly falls with tenure among industry leavers and workers who are not reemployed. This is powerful evidence that economic distress is greatest for high-tenure workers who are unable to return to the same or similar jobs.

Claimants' College Attendance

The rightmost column of Table 4-4 shows that, overall, 13 percent of claimants attended a community college within 5 quarters of making a UI claim in the fourth quarter of 1991 (91.4). The fraction attending college uniformly falls with tenure. Thirteen percent of claimants with less than 6 quarters of tenure attend college, compared to 8 percent of claimants with 6 or more years of tenure. Attendance falls with tenure mainly because most high-tenure claimants return to employers and college attendance rates are particularly low in such cases. College attendance is less then 7 percent for claimants with 3 or more years of tenure who return to former employers.

Table 4-3. Percentage collecting 1-15 UI payments

	Return to former employer	No postclaim employment	Different postclaim employer in		All statuses
			Same SIC	Different SIC	
Tenure (quarters)					
1-5	36.6	27.4	35.4	35.5	34.5
6-12	44.6	23.5	41.1	33.8	37.3
13-24	52.1	22.4	41.4	28.4	41.9
25+	59.6	19.5	45.6	27.1	49.0
All tenures	49.3	25.4	37.9	34.0	37.8

Table 4-4. Percentage of 91.4 claimants attending college by status and tenure

	Return to former employer	No postclaim employment	Different postclaim employer in		All statuses
			Same SIC	Different SIC	
Tenure (quarters)					
1-5	13	5	9	15	13
6-12	12	5	11	14	12
13-24	7	6	14	17	10
25+	6	25	7	17	8
All tenures	9	6	10	15	13

Perhaps the most interesting pattern in Table 4-4 is that college attendance is more than twice as great for high-tenure workers who change industries as for those who return to employers from which they were laid off. This result suggests that even before the inception of the ESHB 1988 program, high-tenure displaced workers turned to community colleges for help in dealing with job loss.

Among those who stayed with their employers, the rate of college attendance is about twice as great for claimants with tenure of less than 3 years as for claimants with 3 or more years of tenure. In addition, the attendance rate only is slightly higher for low-tenure claimants who leave jobs than for those who remain with the same employer. This result suggests that among low-tenure workers, attending college may be largely unrelated to specific labor market events such as being laid off or losing a particular job.

In the next series of tables we use claimants successfully filing for UI in 91.4 as a baseline for comparisons with later cohorts of claimants. In particular, we compare community college attendance of the 91.4 cohort to attendance among claimants filing claims in 94.4. Use of the 91.4 cohort has the advantage of observing attendance patterns well before the ESHB 1988 program was established. Use of the 94.4 cohort has the advantage of observing attendance patterns after the ESHB 1988 program has been well established, but has the disadvantage of permitting attendance to be observed for only 5 quarters, until our data series ends in the first quarter of 1996.

Because the ESHB 1988 program is targeted on UI claimants, it makes sense to only examine changes in attendance *after* claims are established. Therefore, we remove claimants who were in school before making their UI claims and who continued in school after those claims were made. Table 4-5 shows that overall, about 20 percent of claimants attending college within 5 quarters of establishing a claim in 91.4 began attending college before the claim was established. The percentage is highest, 24 percent, among high-tenure workers, and almost as high, 23 percent, for claimants with low tenure of 6 to 12 quarters. However, removing claimants already in community colleges at the point claims were established increases the attendance differential between claimants who leave employers versus those who do not leave employers.

Table 4-5. Percentage of 91.4 college attendees beginning college before their UI claim by status and tenure

	Return to former employer	No postclaim employment	Different postclaim employer in		All statuses
			Same SIC	Different SIC	
1-5	21	33	31	17	19
6-12	27	20	30	19	23
13-24	11	28	15	21	15
25+	19	25	17	29	24
All tenures	19	27	28	18	20

Tables 4-6 through 4-8 compare community college attendance between the 91.4 and 94.4 cohorts. Tables 4-6 and 4-7 display the percentage of claimants starting school spells in the 5 quarters following establishing claims in 91.4 and 94.4, respectively. Table 4-8 displays the percentage point difference in the percentage attending school in 94.4 versus 91.4. Because many more claimants have no subsequent employer in 94.4 than 91.4, we combine the no-employment group with the different industry group to create the "not same employer, not same industry group."

The overall pattern of attendance across tenure and employment status groups is similar in Tables 4-6, 4-7, and 4-8. Attendance is greatest among industry changers and low-tenure claimants who do not change jobs.

Overall, college attendance increased by 2 percentage points between 91.4 and 94.4, from 9 percent to 11 percent. The key trend shown in Table 4-8 is that college attendance substantially increased for the three groups of industry leavers with more than 6 quarters of tenure.

Among very low tenure claimants, college attendance did not increase for industry leavers (which is by far the largest group). It declined for employer stayers, and increased substantially for very low tenure claimants changing employers, but remaining in the same industry. College attendance also declined for stayers with 6 to 12 quarters of tenure.

The attendance change pattern is consistent with meeting the goal of the ESHB 1988 program to increase college attendance among claimants who lose jobs, especially those who would suffer large earnings reductions in the absence of retraining.

Differences in enrollment patterns suggest that the proportion of claimants attending college increased after the ESHB-1988 program was established. But enrollment patterns do not tell the entire story. It also is important to determine how the number of credits earned changed over time.

Increases in credits earned by those attending college could even more substantially increase the total amount of training obtained by groups whose attendance increased. Increases in credit earned also could increase the amount of training obtained by groups whose attendance increased little, if at all, such as very low tenure industry leavers.

Tables 4-9, 4-10, and 4-11 show the average number of credits earned in the 5 quarters following filing a UI claim by claimants in college. The format is identical to that of

Table 4-6. Percentage of 91.4 claimants beginning college after beginning UI claims by status and tenure

	Return to former employer	Different postclaim employer in same SIC	Different employer, different SIC, or no postclaim employer	All statuses
Tenure (quarters)				
1-5	10	6	12	10
6-12	9	8	10	9
13-24	6	12	12	8
25+	5	7	13	6
All tenures	7	7	11	9

Table 4-7. Percentage of 94.4 claimants attending college after beginning UI claims by status and tenure

	Return to former employer	Different postclaim employer in same SIC	Different employer, different SIC, or no postclaim employer	All statuses
Tenure (quarters)				
1-5	7	10	12	11
6-12	6	7	13	9
13-24	8	12	16	11
25+	7	9	15	9
All tenures	7	10	13	11

Table 4-8. Percentage point difference in claimants attending college for 94.4 versus 91.4 cohorts by status and tenure

	Return to former employer	Different postclaim employer in same SIC	Different employer, different SIC, or no postclaim employer	All statuses
Tenure (quarters)				
1-5	-3	4	0	1
6-12	-3	1	3	0
13-24	2	0	4	3
25+	2	2	2	3
All tenures	0	3	2	2

Table 4-9. Average number of credits earned in the 5 calendar quarters after filing claims for 91.4 claimants by status and tenure

	Return to former employer	Different postclaim employer in same SIC	Different employer, different SIC, or no postclaim employer	All statuses
Tenure (quarters)				
1-5	9.1	7.1	10.5	10.0
6-12	8.8	7.9	9.3	9.0
13-24	7.9	8.1	7.7	7.9
25+	4.1	6.0	14.5	7.2
All tenures	7.4	7.4	9.8	9.2

Table 4-10. Average number of credits earned in the 5 calendar quarters after filing claims for 94.4 claimants by status and tenure

	Return to former employer	Different postclaim employer in same SIC	Different employer, different SIC, or no postclaim employer	All statuses
Tenure (quarters)				
1-5	9.2	12.4	18.4	16.4
6-12	13.4	6.9	16.8	14.5
13-24	10.1	12.7	16.6	13.6
25+	11.6	3.2	19.8	13.9
All tenures	11.4	11.2	17.8	15.3

Table 4-11. Difference in the average number of credits earned by claimants attending college for 94.4 versus 91.4 cohorts by status and tenure

	Return to former employer	Different postclaim employer in same SIC	Different employer, different SIC, or no employer	All statuses
Tenure (quarters)				
1-5	.1	5.3	7.9	4.5
6-12	5.6	-1.0	7.5	5.5
13-24	2.2	4.6	8.9	5.7
25+	7.5	-2.8	5.4	6.7
All tenures	4.0	3.8	7.7	6.1

Tables 4-6, 4-7, and 4-8. Overall, the average number of earned credits increased from 9.2 in 91.4 to 15.3 in 94.4, an increase of 6.1 credits. The increase was by far the largest among claimants who changed industries or were not reemployed. The number almost doubled from 9.8 to 17.8.

There also was a substantial increase in credits earned by claimants remaining with the same employer as well as by claimants changing employers but staying in the same industry. Those claimants, however, completed far fewer courses than claimants changing industries.

The large increases in earned credits also is in keeping with the goals of the ESHB 1988 program. However, unlike the increase in attendance, the increase in credits was widely distributed, rather than concentrated among high-tenure industry changers.

Data constraints necessitated limiting the evidence on credits earned in Tables 4-7, 4-8, and 4-9 to the 5 quarters following the start of a UI claim. As noted earlier, our schooling data end in 96.1, and thus, we only could follow college attendance for 5 quarters for the 94.4 cohort. This limitation is a particular problem because schooling spells often start late in the followup period and continue well beyond the point we can observe. Thus, we are making our assessment based on data that may be severely truncated.

We can lift the 5-quarter constraint by comparing the 91.4 claimant cohort to the 92.4 and 93.4 cohorts. Table 4-12 presents credits earned in the short and long run for these three cohorts among claimants who changed industries. Comparing the long-run figures for 91.4 in Table 4-12 to those for other years shows that most of the gain in credits occurred for claimants with 3 to 5 years of tenure. The increases were smaller for claimants with 6 to 12 quarters of tenure, and those with more than 3 years of tenure.

However, there were slight declines among claimants with tenure of less than 6 quarters. Table 4-13 shows that the short-run gains in credits were larger for the 94.4 cohort than other groups, but there was a noticeable bounce-up for all groups associated with the start of the ESHB 1988 program in 93.4.

Putting together the long- and short-run results suggests that in the period the ESHB 1988 program was in place, there was no increase in the number of credits earned by claimants with very low tenure of 1 to 5 quarters, but it took less time in college to earn the same number of credits. The results also suggest that low tenure claimants modestly increased the number of credits they earned.

Interestingly, for the 92.4 cohort, there was almost no short-run increase in credits relative to 91.4 (except for those with 3 to 5

Table 4-12. Average number of credits earned after filing claims for 91.4, 92.4, 93.4, and 94.4 cohorts of industry changers by tenure

	Year-quarter			
	91.4	92.4	93.4	94.4
Tenure (quarters)				
1-5	31.0	28.0	29.6	--
6-12	25.3	31.6	28.1	--
13-24	30.2	59.0	56.3	--
25+	33.4	44.7	37.5	--
All tenures	29.8	32.8	34.3	--

Table 4-13. Average number of credits earned in the 5 quarters after filing claims for 91.4, 92.4, 93.4, and 94.4 cohorts of industry changers by tenure

	Year-quarter			
	91.4	92.4	93.4	94.4
Tenure (quarters)				
1-5	10.5	10.7	13.2	18.4
6-12	9.3	10.0	12.1	16.6
13-24	7.7	14.5	24.3	16.6
25+	14.5	11.8	14.3	19.8
All tenures	10.1	11.0	14.9	17.8
Number of claimants in group	3,880	3,430	4,250	4,020
Percentage relative to 91.4	100	84	110	104

years' tenure), but there were substantial long-term increases for all but the very low tenure cohort. The short-run period only overlapped 93.4, the first quarter of the program's existence. Thus, the long-run results could be much more strongly affected by the program than the short-run results. That long-term effects were far greater than short-term effects, therefore, supports the hypothesis that the ESHB 1988 program had a strong influence on credits earned.

Also of importance, from two to three times more credits were earned in the long run than in the short run. This result is a consequence of a normal full-time course load being 15 credits and there being substantial lags between the initial period of unemployment and entering school. Thus, to the extent claimants earn many credits, 5 quarters following making a UI claim is too short a period to assess the number of credits ultimately earned.

Table 4-14 confirms that the number of credits earned per quarter of attendance was considerably higher when claimants' college attendance is observed over a long period. As noted above, the lag between starting claims and starting college is sufficiently long to place a substantial proportion of college attendance beyond the short-run observation period. In addition, claimants who remain in college 3 or more quarters (a) earn more credits per quarter than those staying 1 or 2 quarters, and (b) earn more of their credits after the 5-quarter short-run observation period ends.

Finally, we examined patterns of earning Group 1 credits as opposed to Group 2 credits. On average, about 45 percent of credits earned were in Group 1. However, the ratio changed very little over time, by employment status, or by tenure. Thus, the tabulations indicate that the *gains* in credits earned were about equal for Group 1 and Group 2 courses.

In the next chapter we use multivariate statistical techniques to more formally test the hypotheses examined in this chapter using tabulations and show separate results for men and women. The regression analysis supports almost all of the above finding. However, the regressions show that overall, most of the increase in credits earned was from completing Group 1, rather than Group 2, courses, and all of the increase in the proportion of credits earned in Group 1 occurred among women.

Summary

This chapter used tabulation to examine the characteristics of UI claimants both before and after the ESHB 1988 program started, and the characteristics of college attendance patterns of those claimants.

Table 4-14. Average number of credits earned per quarter of attendance after filing claims for 91.4, 92.4, 93.4, and 94.4 cohorts

	Year-quarter			
	91.4	92.4	93.4	94.4
Long-term	7.2	7.4	8.3	–
Short-term	5.5	5.5	6.5	8.7

Key findings about the characteristics of claimants include:

- Roughly *one-half* of all claimants have very low tenure of 1 to 5 quarters of experience with former employers at the point they begin drawing benefits. Almost none of these claimants returned to work for their former employers 1 year after starting their claims.

- Roughly one-quarter of all claimants are stayers--claimants who return to their former employers within 5 quarters of claiming UI.

- The remaining one-quarter of all claimants are leavers--claimants who do not return to former employer--who held their jobs for at least 6 quarters before leaving.

- Differences in unemployment duration indicate that claimants with tenure of 3 or more years who leave their former industries experience the greatest difficulty finding jobs at comparable pay.

Key findings about the claimants' rate of community college attendance include:

- Among claimants with less than 3 years of tenure, about 15 percent of the industry changers--leavers who found jobs in different industries--attended community college within 5 quarters of establishing an unemployment claim in 91.4, compared to 13 percent of the stayers.

- Among claimants with 3 or more years of tenure, about 17 percent of industry changers attended community colleges, compared to 7 percent of stayers.

- Between 91.4 and 94.4, college attendance increased by more than 25 percent among industry changers with more than 6 quarters of tenure, but did not increase for industry changers with tenure of 1 to 5 quarters.

Key findings about the number of credits earned by claimants attending community colleges include:

- Between 91.4 and 94.4, the number of credits earned within 5 quarters of claiming UI increased among industry leavers--leavers who did not return to former industries--by 80 percent (from 9.8 to 17.8 credits).

- The number of credits earned increased among stayers by about 50 percent (from 7.4 to 11.4 credits).

- Examination of the gains in credits beyond 5 quarters was impossible for claimants filing claims in 94.4. Examination of long-term gains for earlier cohorts suggested that only one-third to one-half of all credits were earned within 5 quarters of filing a claim.

- Long-term earned credits roughly doubled for industry leavers with 3 to 5 years of tenure in 92.4 and 93.4, relative to 91.4.

- Gains in credits earned were more modest (between 10 and 30 percent) for industry leavers with 1-1/2 to 3 years of tenure and those with 6 or more years of tenure.

- In the period we could examine, there were no long-term gains in credits earned among industry leavers with 1 to 5 quarters of tenure (a group including about one-half of all claimants).

However, the number of credits earned per quarter increased for this group, suggesting that they earned the same number of credits over a shorter period.

- Credits earned per quarter for all tenure groups together increased modestly from 7.2 to 8.3 credits per quarter.

- About 45 percent of credits earned were in Group 1 courses and 55 percent in Group 2 courses. This ratio was stable over time, across tenure groups, and across job change groups. However, evidence in Chapter 5 suggests that, when other factors are held constant, most of the increase in credits earned was from completing Group 1 courses.

Overall, these results suggest that there was a strong positive shift in college attendance and in credits earned that occurred when the ESHB 1988 program began. Moreover, the shift was greatest for the roughly one-quarter of claimants who left former industries after gaining at least a year and half of tenure with former employers. It is this group of claimants who otherwise would have had the most trouble finding work at comparable pay, and who would have suffered the largest long-term earnings reductions.

Interestingly, the large difference in college attendance among high-tenure leavers relative to stayers suggest that 7 percent of displaced high-tenure leavers turned to community colleges for help in finding new high-paying jobs before the ESHB 1988 program began. This suggests that the increase was observed after the program started, built on a reasonably high base.

5 The Effect of the ESHB 1988 Program on College Attendance and Courses Completed

This chapter examines how the ESHB 1988 program affected community college attendance and the number of courses completed. Measuring changes in the amount of training obtained is an essential element of the net impact evaluation because it is not enough to show that training provided by the community colleges raised earnings. It also is necessary to show that the program increased the receipt of that training above what it otherwise would have been.

Thus, one major goal of this chapter is to complement the findings presented in Chapter 3 about the effect of training on earnings. Because earnings effects differ for men and women taking Group 1 courses and Group 2 courses we separately examine attendance effects by gender and course type. Because attending college is expensive in terms of foregone earnings we examine whether increases in attendance are associated with: (a) increases in the number of courses taken per quarter, and (b) decreases in the elapsed time between job loss and college entrance.

Also, to complement Chapter 3, this chapter focuses on displaced UI claimants who had at least a year and a half of work experience at the point they lost their jobs–a group likely to suffer substantial earnings reductions in the absence of retraining. Assisting workers with large losses typically is the major concern of policymakers and employers. Thus, it is particularly important to determine how the ESHB 1988 program affected displaced claimants with relatively high tenure.

How the ESHB 1988 program affected claimants who return to former jobs, very low tenure claimants who leave former employers, and nonclaimants also is relevant to assessing the impact of the program. However, this chapter focuses on workers who were affected by an increase in permanent layoffs, but otherwise were likely to remain with their employers and feel their jobs were secure.

Framework for the Analysis

In assessing the impact of the ESHB 1988 program on community college attendance our primary goals are to determine:

- How displaced claimants' attendance at community colleges changed following the start of the ESHB 1988 program in the fall of 1993.
- How the total number of courses completed by displaced claimants changed following the program's start.
- How changes in courses completed were distributed between Group 1 and Group 2 courses.
- How the number of courses completed per quarter changed.
- How the time between job loss and college entrance changed.

To make these measurements we compare the attendance pattern of displaced claimants who entered community colleges in the period after the ESHB 1988 program started to attendance in the period prior to the program's start. The validity of these comparisons largely rests on how well we take into account factors that influence college attendance that were different in the

two periods. Our database makes it possible to take into account differences in the:

- Demographic characteristics of displaced claimant's--
  - Age,
  - Sex, and
  - Number of dependents.
- Work history characteristics of displaced claimants'--
  - Tenure (quarters of work experience with the pre-job-loss employer),
  - Earnings level,
  - Industry of prior employment
- Availability of transfer payments
  - Potential duration of unemployment insurance (UI) payments, and
  - Maximum weekly UI payment amount
- Local labor market conditions
  - Size of the market,
  - Unemployment level,
  - Change in employment, and
  - Industrial mix.

These factors reflect the key differences in displaced workers' interest in attending college and financial ability to attend college. Thus, it is likely that we can accurately measure *changes over time* in attendance of *similar individuals in similar labor markets*. However, *attributing those changes to the ESHB 1988 program* requires assuming that factors not taken into account did not influence those patterns.

Probably the key assumption is that the availability of community college programs to displaced workers would have remained at preprogram levels in the absence of the ESHB 1988 program. Modeling financial support for community colleges is well beyond the scope of this study. However, we suspect that, if anything, movements to limit Federal and State spending would have decreased financial support.

A second key assumption is that, taking observable factors into account, the desire to attend community colleges remained constant over the period studied. It is possible that, even without the ESHB 1988 program, displaced claimants would have been more likely to attend college after the third quarter of 1993. Over time, changes in labor demand increased the value of training, and barriers for men and women to enter fields traditionally dominated by the opposite sex have fallen.

Fortunately, because changes in demand unfold gradually, we often can test whether demand changes are held constant by variables included in our analysis by examining changes in attendance patterns in the preprogram period.

The Effect of the ESHB 1988 Program on College Attendance

The first set of results we discuss is the quarter-by quarter changes in the probability of displaced claimants attending school in the job loss quarter and 8 following quarters. In this analysis we simultaneously examine the probability of starting college *and* the probability of attending college in each subsequent quarter from job loss

through the eighth quarter following job loss.[1] Thus, each displaced claimant in our sample who is not in school in the quarter before job loss generates nine observations--one for each quarter from the quarter of job loss through the eighth quarter following job loss.

We examine school attendance by displaced claimants from the fourth quarter of 1991 (91.4) through 95.1. Because our wage record data ends in 95.4, 95.1 is the most recent quarter for which we can observe a return to a former employer over at least 3 quarters. A 3-quarter horizon is sufficient because only rarely do claimants not recalled within 3 quarters subsequently return to former employers. Because our community college data begin with 89.3, 91.4 is the first quarter for which 9 quarters elapsed. Had we included earlier entrance cohorts, we could not be sure whether some of their members started attendance within 9 quarters of job loss.

Table 5-1 displays our estimates of how college attendance changed from 91.4 through 95.1. for men and for women. Each column of Table 5-1 displays results for a different quarter in the academic year. Each row displays results for a different academic year. Making comparisons holding the quarter constant is important because enrollment patterns differ strongly across the four quarters in a school year. Attendance is exceptionally low in the summer quarter, and enrollment is higher in the fall quarter than winter or spring quarters.

Table 5-1 displays the regression coefficients for each of 13 quarters. The coefficients represent the difference between attendance in a given quarter versus 92.4. (The coefficient for 92.4 is 0.0000 by definition.) The dependent variable in the regression is whether or not the sample member attended the community college in a given quarter. A large number of personal, work history, claim, and local labor market characteristics are held constant.

The full regressions for men and for women are shown in a separate technical appendix to this report.

The effectiveness of the ESHB 1988 program is measured by the size and statistical significance of the coefficients for the quarters following the start of the ESHB 1988 program relative to the coefficients for the same quarter before the program began in 93.4.

If our model takes into account all factors affecting enrollment except ESHB 1988 program operations, the coefficients for pre-program quarters (in the same season) would be identical, and the coefficients for post-program quarters would reflect the program's effectiveness. If the program's effectiveness increased over time, the size of the coefficients would increase from 93.4 through 94.4.

Line 5 of Table 5-1 shows the difference between coefficients for the same quarter in the preprogram academic years of 1992-1993 versus 1991-1992. In no case are the differences statistically significant. The differences are small for the fall quarter

[1] We also examined how changes in attendance were divided between changes in the proportion of displaced claimants attending college and changes in the length-of-stay of those attending. This analysis suggested that both effects were important, but when examined separately neither effect was statistically different from zero at the 5 percent confidence level. We, therefore, cannot provide a precise estimate of the relative importance of changes in starting school versus remaining in school on attendance rates.

Table 5-1. Changes in community college attendance in the 9 quarters following job loss among claimants beginning spells following displacement by academic quarter and gender

MEN

Change in the probability of attending college

		Academic Quarter			
	Academic Year	Fall	Winter	Spring	Summer
1.	1991-92	-0.0001	0.0010	-0.0027	-0.0123**
2.	1992-93	0.0000	-0.0003	0.0025	-0.0060*
3.	1993-94	0.0025	0.0066*	0.0111**	0.0021
4.	1994-95	0.0145**	0.0137**		
5.	92-93 vs 91-92	0.0001	-0.0013	0.0052	0.0063
6.	93-94 vs 91-92	0.0026	0.0056*	0.0138**	0.0144**
7.	94-95 vs 91-92	0.0146**	0.0127**		
	Change in attending relative to average probability of 0.0437				
8.	92-93 vs 91-92	0.2%	-3.0%	11.9%	14.4%
9.	93-94 vs 91-92	5.9%	12.8%	31.6%	32.9%
10.	94-95 vs 91-92	33.4%	29.0%		

WOMEN

Change in the probability of attending college

		Academic Quarter			
	Academic Year	Fall	Winter	Spring	Summer
1.	1991-92	0.0012	-0.0024	-0.0016	-0.0185**
2.	1992-93	0.0000	0.0014	0.0012	-0.0138**
3.	1993-94	0.0027	0.0026	0.0073+	-0.0096**
4.	1994-95	0.0068+	0.0049		
5.	92-93 vs 91-92	-0.0012	0.0038	0.0028	0.0042
6.	93-94 vs 91-92	0.0015	0.0050	0.0089+	0.0089*
7.	94-95 vs 91-92	0.0056	0.0073		
	Change in attending relative to average probability of 0.0598				
8.	92-93 vs 91-92	-2.0%	6.4%	4.7%	7.0%
9.	93-94 vs 91-92	2.5%	8.4%	14.9%	14.9%
10.	94-95 vs 91-92	9.4%	12.2%		

Note: ** significant at the 0.01 percent level
* significant at the 0.05 percent level
+ significant at the 0.10 percent level

among men and women, and for the winter quarter among men. In two of those three cases, attendance is *lower* in the academic year 1992-1993 than 1991-1992.

These results support the hypothesis that there was no increasing trend in attendance before the start of the ESHB 1988 program for the two largest cohorts in any academic year--men and women attending in the fall quarter--nor the large cohort of men attending in the winter quarter.

Results for the women in the winter quarter of 1992-93 and both men and women in the spring and summer quarters of 1992-93, however, suggest that there was an upswing in attendance just before the start of the ESHB 1988 program -- a period when the merits of increasing support for community college retraining were being debated, and some preparations were being made to implement the program. It is likely that this upswing was related to a growing recognition of the importance of retaining among workers, unions, management, college officials, and government policymakers, which at least in part, was induced by debate over the concept and implementation of the ESHB 1988 program.

Since it is possible that much of the upswing in the spring and summer quarters of 1992-93 was induced by the ESHB 1988 program, we use the 1991-92 academic year as our benchmark for measuring program effects. Lines 6 and 7 of Table 5-1 show the change in the probability of attending a community college for each of 6 postprogram quarters relative to the comparable quarter in academic year 1991-92. The results apply to claimants displaced from a job held 6 or more quarters who entered a community college in the quarter of job loss or subsequent 8 quarters.

Among men, attendance effects following the start of the ESHB 1988 program in 93.4 are large, statistically significant, and grow over time. The much larger effects shown for the fall and winter of the program's second year compared to its first year is consistent with the strength of the program growing as it matured.

The coefficients for the spring and summer quarters of academic year 1993-94 are so large that that they would be statistically significant even if we used the spring and summer of 1992-93 as the basis for the comparisons. In other words, even if we assumed that the attendance increases in the spring and summer quarter of 1992-93 were unrelated to the program's inception, the increase in the postprogram period would still be large and statistically significant. Moreover, the large effects for the spring and summer quarters suggest that an important difference in attendance was that following the program's start, displaced workers were more likely to begin training at whatever point they recognized it would be helpful, rather than wait to the traditional start of the school year.

Among women, attendance effects are large, but not nearly as large as for men, and also tend to grow over time. Because the magnitude of the effects are smaller for women than for men, and there are fewer women in the sample, the results are close to statistically significant at the 10 percent level only for the spring and summer quarters of 1993-94 and fall quarter of 1994-95.

Lines 8, 9, and 10 of Table 5-1 show attendance increases as percentages of average rates. Among male claimants who lost jobs held at least 6 quarters and began school within 8 quarters of displacement, 4.37 percent were attending a community

college per quarter on average between 91.4 and 95.1

These point estimates imply that by the ESHB 1988 program's third quarter of existence attendance rates were about 35 percent above what they would have been in academic year 1991-1992 if the characteristics of the displaced workers and local economies had been identical in both periods. Taking sample variation into account suggests that there is a 95 percent chance that the increases in attendance rates were no lower than 10 percent and no higher than 60 percent above what they otherwise would have been.

Among displaced female claimants, 5.98 percent were attending a community college per quarter on average between 91.4 and 95.1. This rate is 37 percent greater than the rate for displaced male claimants. Because a higher percentage of women than men attended community colleges even before the ESHB 1988 program began, and the absolute increase in attendance was smaller for women than men, the percentage increase for women was one-third to one-half as large as the increase for men.

Based on our point estimates, attendance for women was about 14 percent greater by the ESHB 1988 program's third quarter of existance relative to what it would have been in academic year 1991-1992. However, the range of plausible variation for these estimates is considerably greater than the range for the estimates for men. There is a 95 percent chance that the change in attendance was no lower than a 34 percent reduction and no higher than a 57 percent increase.

The Effect of the ESHB 1988 Program on Course Completion

The results of the preceding section suggests that large increases in displaced workers' community college attendance were associated with the inception and growth of the ESHB 1988 program. However, Chapter 3 showed that it is not community college attendance as such that raises earnings but completion of Group 1 courses. Indeed, it is possible for shorter lengths of stays to be associated with greater gains in earnings in both the short and long run. This would be the case if attendees stayed in school for fewer quarters, but took many more Group 1 courses and a lot fewer Group 2 courses per quarter.

This section examines changes in the number of Group 1 and Group 2 courses completed by an average displaced claimant entering college within eight quarters of job loss. Only claimants completing at least one course in the quarter of entrance or five subsequent calendar quarters are included in this analysis. Examining training over a 6 quarter period starting with entrance captures most, but not all, of the training obtained by displaced claimants. In contrast, the analysis in Chapter 4 examined training obtained in the 5 quarters following filing a UI claim, *not* following college entrance.

In this analysis we summarize each claimant's schooling experience over 6 quarters and examine differences across entrance cohorts. As a result, each attendee contributes only one observation to the analysis. Unfortunately, examining schooling based on the timing of entrance cohorts makes it more difficult to separate out effects that occurred before and after the ESHB 1988 program was put in place. In particular, individuals entering college in the academic year 1992-93 started schooling

spells before the ESHB 1988 program began that often continued into the program period.

The number of observations analyzed here is only 1/200th the number used in the preceding section mainly because 95 percent of the displaced claimants studied in the earlier sample did not attend community colleges; and earlier we separately examined attendance in each of 9 quarters. A major implication of having a relatively small sample size for analysis of course completion is that we need to combine results across the 4 quarters of each academic year in order to obtain meaningful results.

We limit the period of observation to the entrance quarter and 5 subsequent calendar quarters in order to maintain followup periods of the same length for each entrance cohort.[2] Clearly, the longer the period observed the more courses could be taken. Because our college data ends with 96.1, the 94.4 cohort is the most recent entrance cohort that can be followed for 6 quarters.

Although it would be desirable to examine course-taking among displaced workers entering college in the second year of the ESHB 1988 program, we could not produce meaningful results based on data for the fall quarter of the 1994-95 academic year alone. Our analysis suggests that: (1) data on courses completed late in 1995 and early in 1996 may not have been as complete as data for earlier periods, (2) many displaced workers take the bulk of their Group 1 courses towards the end of their schooling spells, and perhaps most importantly, (3) there are substantial differences in course taking patterns among those starting school in the fall and winter quarters versus spring and summer quarters. In particular, claimants starting schooling in the fall and winter are more likely to take academic courses in Group 2, rather than vocational courses in Group 1.

Table 5-2 displays our estimates of how the number of courses completed over 6 quarters changed across claimants starting college in different academic years. The table rows display the coefficients of regressions reflecting differences in the number of courses completed by those beginning a schooling spell in academic year 1992-93 and 1993-94 relative to those beginning a spell in the 1991-92 academic year. The table columns display changes in completion of both Group 1 and Group 2 courses, Group 1 courses alone, and Group 2 courses alone.

The regressions used to produce the coefficients shown in Table 5-2 include the same variables as the attendance regressions, (although they cover a subset of the original population). Those variables control for potential differences over time in displaced claimants' prior education, employment prospects, and many other factors that might affect the number and type of courses completed.

The full regressions are displayed in a separate technical appendix.

[2]We experimented with allowing the followup period to vary across entrance cohorts and separately controlling for the length of the followup period. However, our results suggest that the course taking pattern differs strongly among individuals who leave 1 or 2 quarters after entrance versus those who continue to attend after two quarters. Also, enough stayers took the bulk of their Group 1 courses after 5 calendar quarters elapsed from college entrance to have a large effect on our results. Taking many Group 1 courses after 5 quarters was particularly prevalent for discontinuous attendees-- those starting school and then returning after a gap of several quarter.

Table 5-2 Trends in courses completed within 6 quarters by displaced claimants beginning schooling spells in academic year 1992-93 and 1993-94 relative to academic year 1991-92, by course type and gender

	Relative to 1991-92					
	Changes in the number of courses complete			Percentage change relative to mean		
	GP1+GP2	GP-1	GP-2	GP1+GP2	GP-1	GP-2
Men and women together						
1. academic year 1992-93	-0.043	0.236	-0.296	-0.8%	12.0%	-9.8%
2. academic year 1993-94	0.828**	0.501*	0.352	16.2%	25.5%	11.6%
Men alone						
3. academic year 1992-93	0.448	0.274	0.152	9.2%	12.1%	6.1%
4. academic year 1993-94	1.149**	0.580*	0.583*	23.7%	25.5%	23.5%
Women alone						
5. academic year 1992-93	0.445	0.129	-0.578	-8.3%	8.2%	-15.8%
6. academic year 1993-94	0.639	0.382	0.284	12.0%	24.2%	7.8%

Mean number of courses completed

	GP1+GP2	GP-1	GP-2	Percentage Group 1
7. Men and women	5.112	1.968	3.034	38.5%
8. Men alone	4.849	2.273	2.477	46.9%
9. Women alone	5.347	1.578	3.650	29.5%

Note: ** significant at the 0.01 percent level
* significant at the 0.05 percent level

If the control variables successfully take into account all factors that affect the type and number of courses, except the effect of the ESHB 1988 program, the coefficients in Table 5-2 measure the program's effect on courses completed. If the ESHB 1988 program was effective, the number of Group 1 courses completed would increase. The increases would be small for the academic year 1992-93 cohort because only a portion of attendance was subsequent to the program's start, and large for academic year 1993-94 cohort.

It is more difficult to say how an effective ESHB 1988 program would influence the number of Group 2 courses. Based on the evidence in Chapter 3, the program would be most effective in raising earnings if it reduced the number of Group 2 courses completed. However, the evidence presented in Chapter 3 tells us little about the effect of the New Chance programs included in Group 2. It could be that increases in completion of Group 2 courses reflects the taking of the New Chance courses and those courses have a positive effect on earnings.

The results for men and women together in Table 5-2 show that there were large increases in the number of courses completed by displaced claimants entering community colleges after the ESHB 1988 program began relative to those entering and taking courses in a period well before the program began. Further, the increase in completions primarily were in Group 1 courses. Among those starting college in academic year 1992-93 completion of Group 2 courses fell modestly, while among those starting in 1993-94 the increase in Group 1 courses was about 40 percent greater than the increase in Group 2 courses, even though less than 39 percent of courses completed were in Group 1. Importantly, only the increase in Group 1 courses for those starting college in 1993-94 academic year was statistically significant. The difference in completion of Group 2 courses between the two academic year cohorts could be related to an increase in the number of Group 2 courses in the New Chance and related programs that were designed specifically to help displaced claimants.

The results for men in Table 5-2 show that there was a modest increase in the total number of courses completed by those starting in academic year 1992-93, and a large increase in the total number of courses completed by those starting in academic year 1993-94. For those starting in academic year 1992-93 the increase in Group 1 courses was roughly twice as great as the increase in Group 2 courses, even though a little less than half of all courses completed were in Group 1. However, the increase for those starting in academic year 1993-94 was evenly divided between Group 1 and Group 2 courses. As noted above, the relative increase in Group 2 courses may reflect the maturing of the New Chance and related programs. The results for the 1993-94 cohort are all significant at the 5 percent level, while none of the results for 1992-93 cohort were statistically significant.

For women, there was a modest decline in the total number of courses completed by those starting college in academic year 1992-93. All of the decline was due to substantial reductions in the number of Group 2 courses completed. There was a substantial increase in the number of courses completed by those starting in academic year 1993-94. The number of Group 2 courses increased modestly for the 1993-94 cohort. The increase in Group 1 courses was considerably larger in absolute amount than the increase in Group 2 courses.

Perhaps most important, the increase in Group 1 courses was far larger than the increase in Group 2 courses in percentage terms, since on average only 30 percent of all courses completed by women are in Group 1. In fact, the percentage increase in Group 1 courses completed by women in the 1993-94 academic year cohort was as large in percentage terms as the increase for men. However, because the sample of women was considerably smaller than that for men, none of the results for women were significant at the 5 percent level.

The Effect of the ESHB 1988 Program on the Number of Quarters Attended and the Number of Courses Completed Per Quarter

Chapter 3 showed that earnings gains were strongly associated with the number of Group 1 courses taken. The preceding section of this chapter showed that there was an increase in the number of Group 1 courses completed in the period following the inception of the ESHB 1988 program. These two associations, therefore, suggest that the program was effective in raising the long-term earnings of displaced claimants.

Chapter 3 also showed that there were large short-term and long-term earnings reductions associated with the time spent earning college credits instead of working. Thus, the gains from earning a set number of credits would be increased, if those credits were earned more quickly and work was returned to sooner. This section examines the extent to which the increase in credits earned was due to increasing the number of quarters attended versus increasing the number of courses completed per quarter.

Table 5-3 shows changes in the number of quarters school was attended for the *same* sample of claimants for whom the number of courses completed was studied. That group consists of claimants losing jobs held at least six quarters who entered a community college within 9 quarters of job loss, and completed at least one course within 6 quarters of entrance.

The first two rows of Table 5-3 show schooling duration changes for claimants beginning training in academic years 1992-93 and 1993-94 relative to academic year 1991-92. The columns of Table 5-3 shows the increases for both men and women, men alone, and women alone. The regressions used to produce these estimates include the same variables as the regressions used to estimate the change in number of courses completed, and are shown in a separate technical appendix.

The results are similar to those for courses completed. There was a much larger increase in quarters attended by men than women, and the increase was much larger for the academic year 1993-94 cohort than 1992-93 cohort. The increase in quarters attended was 50 percent greater for men than women in 1993-94 cohort, and for men and women together, the increase in quarters attended was about three times greater in the 1993-94 cohort than 1992-93 cohort.

Line 3 of Table 5-3 shows that the average number of quarters attended was a little higher for women than men, but close to 2.5 quarters for both gender groups. Lines 4 and 5 of Table 5-3 show the percentage change in quarters attended relative to the average number. Among men in the academic year 1993-94 cohort, the number of quarters attended increased by about half a quarter, or just under 20 percent. Among women in the 1993-94 cohort, the increase

Table 5-3 Changes in the number of quarters attended by displaced claimants within 6 calendar quarters of starting a spell of training

		Differences in quarters of attendance relative to academic year 1991-92		
		Men and Women	Men	Women
Academic year				
1.	1992-93	0.12	0.24	0.05
2.	1993-94	0.38**	0.48**	0.33*
		Mean quarters attended		
3.		2.50	2.45	2.54
		Percentage change in quarters attended relative to mean		
Academic year				
4.	1992-93	4.7%	9.6%	1.8%
5.	1993-94	15.3%	19.5%	13.0%
Percentage change in courses completed (from Table 5-2)				
6.	1992-93	-0.8%	9.2%	-8.3%
7.	1993-94	16.2%	23.7%	12.0%
Change in quarters attended as percent of change in courses completed				
8.	1992-93	–	-3.9%	–
9.	1993-94	6.2%	21.5%	-8.3%

Note: ** significant at the 0.01 percent level
* significant at the 0.05 percent level
+ significant at the 0.10 percent level
(-- indicates ratios negative, but magnitudes are not meaningful because small percentage changes accentuate small differences.)

was about one third of a quarter, or about 13 percent.

Lines 6 and 7 reproduce numbers in Table 5-2 that show men increased courses completed in 1993-94 cohort by about 24 percent. Thus, about 80 percent of that gain can be accounted for by the increase in quarters completed. That means that the remaining 20 percent of the total gain was achieved by a modest increase in the number of courses completed per quarter.

In contrast, among men starting schooling in 1992-93 the percentage gain in quarters of attendance was slightly greater than the percentage gain in courses completed. These results imply that there was a small decrease in courses completed per quarter for the 1992-93 male cohort. The same calculations for women shows that there were small decreases in courses completed per quarter in both the 1992-93 and 1993-94 cohorts.

For both men and women together about 94 percent of the gain in courses completed by the academic year 1993-94 cohort was associated with increases in the number of quarters attended, while only 6 percent was associated with an increase in the number of courses completed per quarter.

In summary, the substantial increase in course completion among men entering college in academic year 1993-94 was associated with a moderate increase in courses completed per quarter. However, there were small decreases in courses completed per quarter by men entering in 1992-93 and women entering in both 1992-93 and 1993-94.

The Effect of the ESHB 1988 Program on the Lag Between Job Loss and College Entrance

The final issue addressed in this chapter is changes in the timing of entry relative to job loss. This issue is complex conceptually and is difficult to examine empirically.

The conceptual complexity stems from the paradox that both quickly returning to work and quickly entering college tends to increase earnings in the short and long run. Entering college quickly would be beneficial to claimants for whom retraining has a higher payoff than that obtained by gaining work experience; as well as those who ultimately cannot locate suitable jobs and attend college. However, it often is impossible to know at the outset which job losers will be unable to find work and which are likely to gain more valuable training in college than on the job.

Thus, it is important for college training to be available to those who fail to locate suitable jobs after prolonged searchers, and those for whom retraining can lead to advancement at new jobs, as well as for colleges to not encourage a rapid entrance into training by individuals who can adjust more effectively by returning to work. The bottom line is that the ESHB 1988 program could be effective both by encouraging more rapid college entrance, *and* by encouraging school entrance among claimants who failed to locate suitable jobs after prolonged searches or eventually entered jobs requiring retraining for advancement.

Empirically, we were unable to estimate *changes* in the probability of entering college as a function of time since job loss. Those effects were too small to measure with precision.[3]

Although we cannot say much about *changes* in the timing of school entrance *before and after* the ESHB 1988 program's inception, we can provide some useful information about how the timing of college entrance varies following job loss and factors that affect its timing. The attendance regressions discussed at the beginning of this chapter included variables that measured how attendance varies with time since job loss. The timing coefficients shown in Table 5-4 measure differences in the probability of attendance in a given quarter relative to attendance in the ninth quarter following job loss.

Table 5-4 shows that for men, attendance probabilities are high in the first quarter after job loss, peak in the second quarter following job loss, and sharply diminish thereafter. The probability of being in school is roughly twice as great in the second quarter following job loss as in the fifth quarter.

Table 5-4 shows that for women, attendance probabilities are very low in the quarter of job loss and low in the first quarter after job loss. They peak in the second and third quarter and diminish thereafter. However, the peak for women is far lower than the peak for men.

These results suggest men's attendance is very strongly related to job loss, while women's attendance is less strongly affected by job loss; probably because women are more likely to attend college than men for reasons unrelated to displacement, and possible, less likely to return to work following job loss.

Further evidence on the relative importance of job loss and joblessness in affecting college attendance comes from Table 5-5. The columns of Table 5-5 show for selected variables: (1) regression coefficients from the attendance regressions discussed at the beginning of this chapter, (2) the mean value of the variables, (3) the standard deviation of the variables, and (4) the effect on attendance of a one standard deviation increase in the variables.

Table 5-5 shows that high local unemployment rates have a large, positive effect on college attendance for men, but virtually no effect on college attendance among women. More specifically, a one standard deviation increase in unemployment from its mean would raise the rate from 6.6 percent to 9.7 percent for men. That increase in unemployment would increase attendance by just under 11

[3]Although we could not measure changes over time in the probability of entering college using the appropriate sample-- claimants who did, and did not, attend college. We were able to estimate changes in the lag between job loss and college entrance before and after the ESHB 1988 program's inception for college attendees alone. Because those results can be heavily influenced by fluctuations in displacement rates, they do not necessarily imply anything about how the program influenced those changes. Nevertheless, it is useful to know what those lags were at different times.

The average lag over the entire period studied was 3.2 quarters for men and for women. Among women, however, the average lag was about 2.5 quarters in both of the 2 academic years immediately preceding the start of the ESHB 1988 program, and rose to 3.9 quarters in the 1993-94 academic year. The difference was highly significant statistically. Among men there were no consistent difference in the lag before and after the program's inception.

Table 5-4. Changes in the probability of college entrance as time since job loss increases

College entrance in:	Men		Women	
	Probability[1]	Percentage of Mean	Probability[1]	Percentage of Mean
Quarter of job loss	0.0036	8.2%	-0.1128**	-18.9%
1 quarter after job loss	0.0136**	31.1%	0.00440	7.3%
2 quarters after job loss	0.0201**	46.0%	0.00903*	15.1%
3 quarters after job loss	0.0170**	39.0%	0.01018*	17.0%
4 quarters after job loss	0.0136**	31.1%	0.00567	9.5%
5 quarters after job loss	0.0104**	23.8%	0.00345	5.8%
6 quarters after job loss	0.0084**	19.1%	0.00521	8.7%
7 quarters after job loss	0.0060*	13.6%	0.00079	1.3%
8 quarters after job loss	0.0036	8.3%	0.00105	1.8%
Mean probability	0.04372		0.05982	

Note: ** significant at the 0.01 percent level
* significant at the 0.05 percent level

[1] This column displays the probability of entering college relative to the probability 9 quarters after job loss.

Table 5-5 The effect of key variables on the probability of college attendance

		Coefficient	Mean	Standard Deviation[1]	Attendance Change[2]
	Men				
1.	Local area unemployment rate	0.15051**	0.066	0.031	10.7%
2.	UI weeks of entitlement	0.00135**	19.574	9.012	27.8%
3.	Number of dependents	-0.00202**	1.109	1.416	-6.5%
4.	Spouse working 1=yes, 0= not working or no spouse	0.00549**	0.260	0.440	5.5%
5.	Age in years	-0.00138**	37.687	9.238	-29.2%
6.	Years of education	0.00166**	11.608	4.306	16.4%
7.	Quarters of tenure	0.00006	14.288	7.653	1.0%
	Women				
1.	Local area unemployment rate	-0.00178	0.065	0.024	-0.1%
2.	UI weeks of entitlement	0.00207**	20.408	8.487	29.3%
3.	Number of dependents	0.000005	0.937	1.246	0.0%
4.	Spouse working 1=yes, 0= not working or no spouse	-0.01279**	0.357	0.468	-10.0%
5.	Age in years	-0.00134**	38.521	9.039	-20.2%
6.	Years of education	0.00105**	11.912	3.947	6.9%
7.	Quarters of tenure	0.00044**	15.040	7.662	5.6%
	Mean probability of attending for: men	0.04372			
	women	0.05982			

Note: [1] Standard deviations measure the spread of values across sample members above and below the mean (average value). Typically about 70 percent of the observations fall between one standard deviation below the mean and one standard deviation above the mean.

[2] Attendance change is the estimated change in attendance resulting from a one standard deviation increase in the row variable. It equals the coefficient times the standard deviation.

** significant at the 0.01 percent level.

percent. The analogous calculation for women shows there would be virtually no change in attendance for women.

This result suggests that men are much more likely to turn to community colleges when opportunities to work are scarce than when they are plentiful. This tendency is partly related to valuable learning occurring on the job as well as in school, and partly to not being financially able to forego earnings in order to attend college.

Table 5-5 supports the view that income support is a major determinant of college attendance. In particular, a 9-week (one standard deviation) increase in weeks of unemployment insurance available at the point of job loss would increase college attendance by about 28 percent for men and 31 percent for women. The Emergency Unemployment Compensation (EUC) Act increased weeks of UI entitlement by much more than one standard deviation during the early part of the period studied, as did rule changes facilitating receiving UI while in training that occurred late in the period studied.

Further evidence of the importance of financial constraints comes from the effect of having a working spouse and many dependents. For men, a one standard deviation increase in the number of men with working spouses would increase college attendance by about 5.5 percent, and an average increase of 1.4 dependent children would decrease college attendance by about 6.5 percent. (Interestingly, for women, a one standard deviation increase in the number of working spouses would decrease college attendance by 10 percent, and an increase in the number of dependents would have no effect on attendance, but both results probably stem from unmarried women being more likely to attend college than married women.)

Statistics on age, education, and tenure are presented in Table 5-5 for comparison purposes. Importantly, age is one of the most powerful determinant of college attendance, but is not quite as potent as UI benefit entitlement for women, and only slightly less potent than benefit entitlement among men. Female and male claimants who are about 9 years younger than the average age of 38, are about 20 percent and 29 percent, respectively, more likely to attend college. Female and male claimants with about 4 more years of education than the average of 12 years, are about 7 percent and 16 percent, respectively, more likely to attend college.

In summary, the key results in Table 5-4 are that men are far more likely to attend college in the year following displacement than at other times. Women also are more likely to attend college shortly after job loss, but the differential is only about half of that for men.

The key results in Table 5-5 are that men's attendance is very strongly affected by local area unemployment, and weeks of UI entitlement available at the point of job loss, and reasonably strongly influenced by having a working spouse, number of dependents, age, and education. Women also are strongly affected by weeks of UI entitlement, probably strongly affected by marital status, less strongly affected by age and education, but not influenced by local area unemployment.

Taken as a whole these results are consistent with the hypotheses that: (1) men are far more likely than women to return to work rather than attend college when work is available, (2) income support is a very important determinant of whether men enroll and remain in college, and (3) the availability UI benefits has a major

influence on attendance for both men and for women.

Chapter Summary

This chapter showed that there were substantial increases in college attendance probabilities following the inception of the ESHB 1988 program. Among men who lost jobs held at least 6 quarters, attendance probabilities increased by about one-third in the fall and winter quarters of academic year 1994-95 relative to the same period of both academic years 1991-92 and 1992-93. A one-third increase translates to the percent attending college rising from about 4.2 percent to 5.8 percent.

Attendance probability increases were about as large in the spring and summer quarters of academic year 1993-94 when compared to attendance rates in the same period of 1991-92, but about half as great when compared to rates in 1992-93. Attendance effects for women were about one-third those of men, at least in part, because women were about 40 percent more likely to attend college than men.

Increases in attendance translated into roughly proportionate increases in the number of courses completed. However, there was a modest increase in the number of courses completed per quarter of attendance for men starting college in academic year 1993-94.

The increase in Group 1 courses was about 40 percent greater than the increase in Group 2 courses for those starting in academic year 1993-94. For those starting in academic year 1992-93, however, the number of Group 2 courses completed fell. The difference over time in the taking of Group 2 courses could have been related to the maturation of the New Chance and related programs that increased the availability of Group 2 courses specifically tailored to displaced claimants.

For claimants starting college in academic year 1993-94, the increase in the number of Group 1 and Group 2 courses were about equal for men. Among women the Group 1 increase was 40 percent greater than the Group 2 increase. However, on average only about one-third of courses completed by women are in Group 1, compared to just under half of the courses completed by men. Thus, in percentage terms, the increase in Group 1 courses was close to 25 percent for both men and women.

Finally, we could not detect any changes over time in the lag between losing jobs and entering community colleges. What we could show was that men were much more likely to attend college in the year following job loss than at other times, and attendance was very strongly influenced by local area unemployment, as well as by the availability of UI benefits and other types of income support such as having a working spouse. Women also were more likely to attend college in the year following job loss, but were much more likely than men to attend college at other times. Although women's attendance was strongly influenced by the availability of UI benefits, it was not influenced by local area unemployment.

Our results suggest that men (and possibly unmarried women) were likely to rapidly return to work when jobs were available, in part, because the value of what was learned on the job was high, and in part, because they could not afford to forego the earnings in order to attend college.